Exhibit A

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

Mona Abouzied, Individually and on Behalf of All Others Similarly Situated, Plaintiff, v. APPLIED OPTOELECTRONICS, INC., CHIH-HSIANG (THOMPSON) LIN, and STEFAN J. MURRY, Defendants.	Case No. 4:17-cv-02399 **CLASS ACTION** JURY TRIAL DEMANDED

[PROPOSED] SECOND CONSOLIDATED AMENDED CLASS ACTION COMPLAINT FOR VIOLATIONS OF THE FEDERAL SECURITIES LAWS

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Court-appointed Lead Plaintiff Lawrence Rougier ("Plaintiff") brings this action pursuant to Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 (the "Exchange Act"), individually and on behalf of all other persons or entities who purchased or otherwise acquired publicly traded common stock and/or call options of Applied Optoelectronics, Inc. ("AOI," "Applied Optoelectronics," or the "Company") or sold put options of Applied Optoelectronics from February 23, 2017 through September 27, 2018, both dates inclusive (the "Class Period") and were damaged thereby (the "Class").

Plaintiff alleges in this Second Consolidated Amended Complaint (the "Complaint") the following based upon personal knowledge as to Plaintiff and Plaintiff's own acts, and upon information and belief as to all other matters based on the investigation conducted by and through Plaintiff's undersigned attorneys. This investigation included, among other things, a review and analysis of: (i) AOI's public filings with the U.S. Securities and Exchange Commission ("SEC"); (ii) Company presentations, press releases, and reports; (iii) transcripts of AOI conference calls with analysts and investors; (iv) securities analysts' reports and advisories concerning the Company; (v) news and media reports concerning the Company; (vi) interviews of confidential witnesses ("CW") with personal knowledge of relevant facts; and (vii) information readily obtainable on the internet.

Plaintiff believes that evidentiary support will exist for the allegations set forth herein after a reasonable opportunity for discovery. Most of the facts supporting the allegations contained herein are known only to the Defendants or are exclusively within their control.

I. SUMMARY OF THE ACTION

1. This action arises out of Defendants' near two-year campaign to deceive investors by concealing the inability of AOI's purported vertical integration model to transition its

manufacturing from the 40G transceiver to the cutting-edge 100G transceiver to avoid losing its three large "hyperscale" data center customers—Amazon, Facebook and Microsoft—and stay ahead of competitors in the highly competitive semiconductor industry.

2. AOI is a manufacturer of optical transceivers, which connect computer servers at massive data centers that communicate data to personal computers, mobile phones, and other connected devices. AOI makes most of its transceiver components in-house at factories in Texas, China, and Taiwan.

3. During the Class Period, Amazon, Facebook and Microsoft collectively accounted for between 68% and 80% of AOI's revenue. Amazon was AOI's largest customer through the second quarter 2017, accounting for 50% to 60% of the Company's total revenue, until it sought transceivers elsewhere as a result of product defect and yield issues with AOI's 100G transceivers. From the third quarter 2017 forward, Facebook, which became an AOI customer in the fourth quarter 2016, replaced Amazon as AOI's largest customer, accounting for between 31% and 52% of AOI's total revenue during the remainder of the Class Period.

4. These data center customers demand faster transceiver technology at lower prices and in greater volumes than ever before. Thus, the transceiver market is highly competitive: manufacturers compete fiercely on pricing, technology, and the speed at which they can supply their customers' needs.

5. Throughout the Class Period, Defendants touted AOI as a "vertically integrated" Company that could easily respond to its customers' changing needs by transitioning from older technology to newer, faster technology at a lower cost and with better quality control than its competitors. AOI's "vertically integrated" model purportedly allowed it to manufacture complicated transceiver components, including the critical "laser chips" (or simply "chip" in the

parlance of Defendants) and optical subassemblies, in its own facilities, rather than procuring costly components from other suppliers.

6. AOI's manufacturing advantage supposedly allowed it to transition seamlessly from slower "40G" transceivers, which are comprised of four 10G laser chips, to faster "100G" transceivers, which are comprised of four 25G laser chips. As Defendants stated on February 23, 2017, the first day of the Class Period:

> Our ability to internally manufacture lasers and light engines combined with our ability to quickly transition production between 40G and 100G products provides us with cost-leadership advantages, a faster time to market and the ability to quickly scale and adjust our throughput to meet growing demand.

7. Production of AOI's 100G transceivers began in 2015, but in limited supply due to the Company's inability to obtain an acceptable "yield" at the Taiwan facility where the 100G transceivers are assembled before shipping to customers. "Yield" represents the portion of the total product produced that is not defective and functions properly. Yield is directly correlated to profitability and, thus, maintaining an acceptable yield is essential for transceiver manufacturers like AOI.

8. According to confidential witnesses, from the start of production in 2015 until approximately the third quarter of 2017, AOI's yield for its 100G transceivers was an abysmal 40%. This level of yield was considered "so bad" that during 2017, AOI was forced to send engineers from its Sugar Land, Texas facility to Taiwan to fix the problem. Because AOI's yields were too low to meet Amazon's demand at the start of the Class Period, AOI had already received demand forecasts from Amazon for the following six to twelve months as required by the parties' supply agreement. These forecasts showed that Amazon's demand for the upcoming year was significantly lower, as Amazon was transitioning to obtain transceiver components from other

suppliers. Indeed, the percentage of AOI's revenue attributable to Amazon steadily declined throughout the Class Period, dropping from 63% in Q4 2016 to 56%, 47%, and 10% for the first, second and third quarters of 2017, respectively.

9. While AOI was able to eventually get the yield for 100G transceivers up to an acceptable level of 80 to 90% by Q4 2017, the 100G transceivers were also plagued with a second problem that existed prior to the Class Period and persisted throughout—the coating on the component 25G laser chips that made up the 100G transceiver was defective, making the 100G transceiver prone to failure within a short period of time after installation at the customers' data centers.

10. A former AOI design engineer during the Class Period informed AOI management of the chip coating issue in 2017, but management refused to fix the problem. This witness, who described the chip coating defect as a "ticking time bomb," left AOI at the end of 2017, not wanting to be associated with the inevitable failure of the 100G transceiver. Thus, the reliability issues persisted throughout the Class Period and AOI's supposed vertically-integrated factories never could transition from making older technology to new technology, as Defendants represented.

11. These pervasive product issues caused Amazon and Facebook to receive transceivers with latent defects caused by the defective laser chips that emerged shortly after the devices had been installed in their data centers.

12. As a result of AOI's inability to meet its top customers' demand with reliably functioning 100G transceivers, AOI's sales plummeted even further when the chips inevitably failed—Amazon's sales declined from 47% in the second quarter 2017 to 10% in the third quarter 2017 and, as for Facebook, it suspended and delayed Q3 2018 shipments from AOI, is buying less in Q4, and prospects for future AOI purchases are dim, as it is now filling its demand for

transceivers from Intel.

13. Defendants were aware of the problems with AOI's defective transceivers, low yields, and massively declining sales orders from Amazon and Facebook prior to and throughout the Class Period. For example, Jason Chien ("Chien"), the director of the manufacturing center in Taiwan in charge of transceiver production, reported yields directly to Defendant Lin by video call, phone call, or in-person every couple of weeks throughout the Class Period. Moreover, Defendant Lin's special assistant, Chan Chih (David) Chen, attended weekly research and development ("R&D") meetings throughout the Class Period during which the defective 100G transceiver laser chip problems and production delays and shortfalls were discussed and promptly reported back to Lin. Huanlin Zhang ("Zhang"), the manager responsible for laser chips in the Sugar Land facility. Zhang ran the R&D meetings and reported on yields directly to Defendant Lin before earnings reports were issued. Defendants also had access to the SAP enterprise resource management system ("SAP") containing real time updates on customer demand and orders as required by supply agreements with AOI's customers, including Amazon and Facebook.

14. Yet, Defendants falsely asserted throughout the Class Period that its three largest customers' demand would continue unabated. For example, Defendant Murry stated during a May 2017 analyst call that "***right now, we're using every device that we can make in our internal production, basically. And given the forecast that we see from the customers, I don't see that situation changing. . . .***" Defendants further touted throughout the Class Period that they knew the level of demand AOI could expect from its customers, responding to analysts, "***[D]o we have good visibility into our customers? And I think the answer is yes***."[1]

15. During an August 3, 2017 earnings call, Defendants began to reveal the truth when

[1] Except where otherwise noted, all emphasis in quotations is added.

they first disclosed that AOI expected 40G sales from Amazon to sag significantly in the third quarter and that the Company's sales of 100G transceivers would not make up the difference. On the news, the Company's share price fell over 34% from a close of $97.99 per share on August 3, 2017 to $64.60 per share on August 4, 2017, on unusually high volume.

16. Instead of acknowledging that the decline in Amazon revenue represented the new normal for AOI, Defendants characterized the drop in 40G sales as temporary and reassured investors that higher sales of 100G transceivers to Amazon would be forthcoming. In reality, Amazon had already begun going elsewhere to purchase its 100G transceivers, a fact that would have been reflected in the forecasts and projections it provided AOI.

17. Defendants disclosed neither the 100G transceiver quality issues, nor Amazon's declining transceiver sales forecasts to investors. They did just the opposite. During the same August 3, 2017 earnings call, Defendants reiterated that they expected to see "***a resumption of growth from our largest customer***"—Amazon—based on a supposed "***significant amount of committed orders and a good forecast from all 3 of our customers.***" To make up for lost sales to Amazon, AOI focused on increasing its business with an unsuspecting Facebook which, as a relatively new customer, was not yet aware of the laser chip coating problem.

18. In an October 12, 2017 earnings announcement, AOI further shocked the market when Defendant Murry admitted that—contrary to AOI's persistent representations that Amazon's forecasted demand for 100G was strong—Amazon had lowered its overall demand for ***both 40G and 100G***. Indeed, revenue from Amazon fell from 47% of AOI's total revenue to a mere 10%. On that news, AOI's share price plummeted by over 20% to a closing price of $47.01 per share on October 13, 2017, on heavy trading volume.

19. On February 21, 2018, AOI announced that it had fallen behind in its transition from 40G to 100G due to "customer-specific" issues, i.e. a collapse in Amazon purchases. On this news, AOI's shares fell $7.04 from a close of $34.55 on February 21, 2018 to a close of $27.51 on February 22, 2018.

20. Following the disclosures revealing that AOI's lost sales from Amazon represented a secular rather than temporary setback, Defendants stoked investor hopes that new business, particularly from Facebook, would rekindle AOI's growth. But in fact, still unbeknownst to investors, the same manufacturing and product quality issues with 25G laser chips and 100G transceiver that permanently damaged the Amazon relationship during the first part of the Class Period had also infected AOI's relationship with Facebook.

21. On September 27, 2018, analyst Loop Capital Markets downgraded its recommendation from Hold to Sell following Loop's industry checks identifying that: 1) AAOI is having product quality issues in 100G transceivers, and 2) the pricing environment for 100G data center optics remains very tough. Loop Capital Markets lowered its price target from $45.00 per share to $20.00 per share. On Loop Capital Markets' announcement, AOI's share price fell from a close of $31.34 per share on September 26, 2018 to $28.36 per share on September 27, 2018, a drop of 9.5%, on heavy trading volume.

22. The following day, on the morning of September 28, 2018, AOI issued a press release in which Defendant Lin confirmed AOI's 25G laser chips were defective and, as a result, AOI would "suspend" future shipments of the transceivers to a "specific customer," later identified as Facebook:

> During the third quarter, ***we identified an issue with a small percentage of 25G lasers*** within a specific customer environment. Consistent with AOI's commitment to supreme product quality and customer support, ***we mutually agreed with the customer to temporarily suspend shipments of certain transceivers utilizing these***

> ***lasers*** while we worked to gain a deeper understanding of the scope of the issue and implement a solution. We have since determined that less than one percent of these lasers were subject to this issue, we have enacted a solution and with the agreement of the customer, resumed shipments.

Despite dismissing the 25G laser chip issue as immaterial, in the same press release, AOI lowered 3Q 2018 revenue guidance from between $82 million and $92 million to between $55 million and $58 million, or approximately ***37%***.

23. Lin's admission confirms that the reason Amazon was purportedly slow to transition to 100G was because of AOI's laser chip issue with its 100G optical transceivers. Indeed, confidential sources have confirmed that Amazon and Facebook both used the same 25G laser chips with the same chip coating problem and that Facebook's issues were the result of products shipped during the prior year that had started failing.

24. Following the analyst's revelation and Defendants' admission, AOI's share price fell from a close of $28.36 per share on September 27, 2018 to $24.66 per share on September 28, 2018, a drop of 13%, on heavy trading volume, for a total drop from September 26 to 28, 2018 of 21.3%.

25. After the Class Period, on November 7, 2018, Defendants announced Q3 2018 net revenue had declined to $56.4 million as compared to $89 million in the third quarter of 2017. On the earnings call that immediately followed, Defendant Murry confirmed the laser chip issue and admitted that AOI had been "***troubleshoot[ing]***" the 25G laser chip issue for Facebook and that this "quality issue" prevented AOI from "complet[ing] the manufacturing" process, forcing AOI to take an approximate $1.5 million inventory write-down in the third quarter.

26. As is set forth below, Defendants' statements and omissions were false and misleading, and caused damage to Plaintiff and the putative Class.

II. JURISDICTION AND VENUE

27. The federal law claims asserted herein arise under and pursuant to Sections 10(b) and 20(a) of the Exchange Act (15 U.S.C. §§ 78j(b) and 78t(a)) and Rule 10b-5 promulgated thereunder by the SEC (17 C.F.R. § 240.10b-5).

28. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. § 1331 and Section 27 of the Exchange Act (15 U.S.C. § 78aa.).

29. Venue is proper in this District pursuant to Section 27 of the Exchange Act and 28 U.S.C. § 1391(b) because certain of the acts alleged herein, including the preparation and dissemination of material false and/or misleading information, occurred in this District.

30. In connection with the acts alleged herein, Defendants, directly or indirectly, used the means and instrumentalities of interstate commerce, including but not limited to the mails, interstate telephone communications, and the facilities of a national securities exchange.

III. PARTIES

A. Lead Plaintiff

31. Court-appointed Lead Plaintiff Lawrence Rougier, as set forth in his certification and transactions supporting the motion for consolidation of related actions, appointment as Lead Plaintiff, and for approval of selection counsel, Dkts. 9-2, 9-3 and 9-4, purchased AOI securities at artificially inflated prices during the Class Period and, as a result, was damaged thereby.

B. The Corporate Defendant

32. Defendant Applied Optoelectronics was incorporated in the State of Texas in 1997 and converted to a Delaware corporation in March of 2013. The Company's principal executive offices are located at 13139 Jess Pirtle Blvd., Sugar Land, Texas, 77478. Applied Optoelectronics' common stock trades on the NASDAQ under the ticker symbol "AAOI."

C. The Individual Defendants

33. Defendant Chih-Hsiang (Thompson) Lin ("Lin") founded Applied Optoelectronics and has been the Company's President and Chief Executive Officer ("CEO") since inception. Defendant Lin has also served as AOI Chairman of the Board since January 2014. He has served as Director or Chairman of the Board at all times since 1997. Defendant Lin holds a Bachelor's degree in Nuclear Engineering from National Tsing Hua University in Taiwan and a Master's degree and Ph.D. in Electrical and Computer Engineering from the University of Missouri-Columbia.

34. Defendant Stefan J. Murry ("Murry") has been AOI's Chief Financial Officer ("CFO") since August 2014 and the Chief Strategy Officer since December 2012. Defendant Murry has held various positions with the Company since 1997: Vice President of Sales and Marketing from June 2004 to December 2012; Director of Sales and Marketing from January 2000 to June 2004; and, Senior Engineer of Device Packaging from February 1997 to January 2000. Murry has been issued multiple patents in the optoelectronics industry and other related industries. He received his Bachelor's and Master's degrees in Physics and a Ph.D. in Electrical Engineering from the University of Sugar Land.

35. Lin and Murry are collectively referred to herein as the "Individual Defendants." Applied Optoelectronics and the Individual Defendants are collectively referred to herein as the "Defendants."

36. Each of the Individual Defendants:

(a) directly participated in the management of the Company;

(b) was directly involved in the day-to-day operations of the Company at the highest levels;

(c) was privy to confidential proprietary information concerning the Company and its business and operations;

(d) was directly or indirectly involved in drafting, producing, reviewing and/or disseminating the false and misleading statements and information alleged herein;

(e) was directly or indirectly involved in the oversight or implementation of the Company's internal controls;

(f) was aware of or deliberately recklessly disregarded the fact that the false and misleading statements were being issued concerning the Company; and/or

(g) approved or ratified these statements in violation of the federal securities laws.

37. Because of the Individual Defendants' positions within the Company, they had access to undisclosed information about AOI's business, operations, operational trends, financial statements, markets and present and future business prospects via access to internal corporate documents (including AOI's operating plans, budgets and forecasts and reports of actual operations and performance), conversations and connections with other corporate officers and employees, attendance at management and Board meetings and committees thereof and via reports and other information provided to them in connection therewith.

38. As officers of a publicly-held company whose securities were, and are, registered with the SEC pursuant to the federal securities laws of the United States, the Individual Defendants each had a duty to disseminate prompt, accurate and truthful information with respect to AOI's financial condition and performance, growth, operations, financial statements, business, markets,

management, earnings and present and future business prospects, and to correct any previously-issued statements that had become materially misleading or untrue, so that the market price of AOI's publicly-traded securities would be based upon truthful and accurate information. The Individual Defendants' misrepresentations and omissions during the Class Period violated these specific requirements and obligations.

39. The Individual Defendants, because of their positions with the Company, possessed the power and authority to control the contents of AOI's reports to the SEC, press releases, and presentations to securities analysts, money and portfolio managers, and institutional investors, *i.e.*, the market. Each Individual Defendant was provided with copies of AOI's reports and press releases alleged herein to be misleading prior to, or shortly after, their issuance and had the ability and opportunity to prevent their issuance or cause them to be corrected. Because of their positions and access to material non-public information available to them, each of these defendants knew that the adverse facts specified herein had not been disclosed to, and were being concealed from, the public, and that the positive representations which were being made were then materially false and/or misleading. The Individual Defendants are liable for the false statements pleaded herein, as those statements were each "group-published" information, the result of the collective actions of the Individual Defendants.

40. Each of the Individual Defendants are liable as a participant in a fraudulent scheme and course of business that operated as a fraud or deceit on purchasers of Applied Optoelectronics Securities by disseminating materially false and misleading statements and/or concealing material adverse facts. The scheme: (i) deceived the investing public regarding AOI's business, operations, management and the intrinsic value of its securities and (ii) caused Plaintiff and other shareholders to purchase AOI securities at artificially inflated prices.

IV. STATEMENT OF FACTS

A. AOI Relies Heavily on Its Internet Data Centers Business

41. AOI was founded in 1997 and became a publicly traded company in September 2013. AOI claims to be the leading, vertically-integrated provider of fiber-optic networking products, designing and manufacturing at varying levels of integration, from components, subassemblies and modules, to complete turn-key equipment. AOI boasts that its vertically integrated manufacturing model provides the Company with advantages in rapid product development, fast response to customer requests, and control over product quality and manufacturing costs.

42. AOI operates manufacturing facilities in Sugar Land, Texas, Ningbo, China (PRC), and Taipei, Taiwan (ROC). In Texas, AOI has approximately 373 employees and manufactures laser chips, subassemblies (TOSAs and ROSAs), and components. The subassemblies are used by the Company's other facilities to manufacture components. In Taipei, where AOI has approximately 1,373 employees, AOI manufactures optical components such as the butterfly laser, which incorporates laser chips, subassemblies and components manufactured at the Texas location, as well as the transceivers used by the internet data centers. In Ningbo, where AOI has approximately 1,308 employees, AOI manufactures the more labor-intensive components and optical equipment systems, such as optical subassemblies. The majority of AOI's optical transceivers utilize the Company's own lasers and subassemblies (also known as "light engines").

43. AOI has four primary end-markets: internet data center, cable television ("CATV"), fiber-to-home ("FTTH"), and telecommunications ("telecom"). Sales in all four of AOI's end markets are driven by increasing bandwidth demand due to the growth of network-connected devices, video traffic, cloud computing, and online social networking. To supply higher

bandwidth, AOI's customers must improve their network infrastructure, and more specifically the equipment that transmits the information must be updated to faster speeds.

44. The CATV market is AOI's most established market, for which it supplies lasers, transmitters and transceivers, and turn-key equipment to customers such as Cisco Systems, Inc. and Arris Group, Inc.

45. For FTTH, the Company's newest market, AOI supplies internet service providers with technology for delivering bandwidth to customers' homes.

46. In the telecom market, AOI's focus is on supplying optical products designed to transmit signals used in 4G Long Term Evolution ("LTE"), mobile networks.

47. The internet data center market is AOI's largest and fastest growing market, providing products to large internet-based ("Web 2.0") data or "hyperscale" center operators.

48. AOI generates the majority of its internet data center revenue from the sale of optical transceivers. As customer demand has increased, the technology for achieving faster communication speeds has continued apace. While transceivers capable of transmitting data at one gigabit per second ("Gbps" or "G") were cutting-edge in 2013, 40G transceivers had almost completely supplanted both 1G and 10G transceivers by 2015. 100G transceivers entered the market in late 2015, but in limited supply, and demand for 40G devices persisted. Indeed, in 2016, the majority of AOI's data center sales were for 40G transceivers. However, by the beginning of the Class Period, customers' attention had turned to newly developed 100G transceivers and highly anticipated 200G and 400G transceivers.

49. As demonstrated in the chart below, the internet data center end-market represented approximately 77%, 80%, and 76% of the Company's revenue for 2016, 2017 and the nine months-ended September 30, 2018, respectively.

AOI TOTAL REPORTED REVENUE BY SEGMENT ($m)

	Data Center	CATV	Telecom	FTTH	Other	Total
2014	$64.5	$47.4	$3.9	$13.6	$1.2	$130.4
	49%	36%	3%	10%	1%	
2015	$123.3	$53.7	$9.7	$2.5	$0.8	$189.9
	65%	28%	5%	1%	0%	
2016	$201.3	$43.6	$12.9	$1.6	$1.3	$260.7
	77%	17%	5%	1%	1%	
2017	$306.7	$60.8	$12.9	$0.5	$1.5	$382.3
	80%	16%	3%	0%	0%	
Nine months-ended 9/30/18	$158.6	$39.0	$10.4	$0.5	$0.9	$209.4
	76%	19%	5%	0%	0%	

B. AOI's Internet Data Centers Business Depends Almost Entirely on Sales of Optical Transceivers to Three Internet Giants

1. Technical Overview of Optical Transceivers

50. The transceiver used in fiber optic communication systems consists of (1) an optical *transmitter*, which converts an electrical signal into an optical signal; (2) a fiber optic cable containing one more or bundles of optical fibers, through which the optical signal is transmitted; (3) optical amplifiers to boost the power of the optical signal; and (4) an optical *receiver* that reconverts the received optical signal back to the original transmitted electrical signal.[2]

51. The *transmitter* in a transceiver receives data in the form of electrical signals sent by computer devices via fiber optic cables and converts those signals into optical signals (*i.e.*, a laser beam) using laser diodes, which are "tiny semiconductor devices (chips)."[3] The *receiver* "use[s] semiconductor detectors (photodiodes or photodetectors) to convert optical signals to electrical signals", which can then be transmitted electronically to another computer device.

[2] http://www.iaeng.org/publication/WCE2014/WCE2014_pp438-442.pdf
[3] http://www.thefoa.org/tech/ref/appln/transceiver.html

52. Most of AOI's transceivers are plugged into switches and computer servers within hyperscale data centers, which store, process, and communicate massive amounts of data for websites (like Facebook) or for "cloud computing" services (provided by companies including Amazon and Microsoft for their own applications and for other businesses). Data from these centers are then transmitted through network connections to internet service providers, then onto individual digital devices. Data centers have increased in physical size and accelerated their data transmission rates to catch up to consumers' and businesses' ever-growing consumption of digital bandwidth. Because the transmission speed of the optical transceiver limits the speed at which a data center can communicate information, data center customers have sought faster, smaller, and more energy-efficient transceivers.

53. During the Class Period, AOI aggressively pushed its customers (including Amazon and Facebook) to adopt the CWDM network architecture ("CWDM") so that they would save costs by using less fiber in their data centers. CWDM technology allows a transceiver to transmit 100G or more per second using multiple "lambdas" (i.e., colors) of laser light on a single optical fiber. When data is being transmitted over long distances (as is the case in increasingly vast data centers), a CWDM transceiver saves money on fiber optic cable because fewer cables are needed to transmit the same amount of data.

54. An Optical Mux in a 100G CWDM transceiver "multiplexes" the wavelength of a laser signal using an optical multiplexer ("Mux"), which Mux consolidates multiple optical carrier signals (*e.g.*, laser light from four different 25G laser diodes in a 100G CWDM4 transceiver) onto a single-mode fiber ("SMF") cable by using different lambdas or wavelengths (*i.e.*, colors) of laser light[4] (by contrast, a parallel single-mode 4-lane ("PSM4") transceiver uses an eight-fiber optical

[4] https://en.wikipedia.org/wiki/Wavelength-division_multiplexing

connector). CWDM4 transceivers thus represent an advancement over parallel single motor ("PSM") transceivers, which are cheaper on their own because they do not require Mux and Demux components.

55. According to Defendant Murry, during a May 4, 2017 earnings call, "the CWDM products make up the majority. As a percentage of the overall revenue, it's more than doubled since last year." Similarly, during AOI's Q3 2017 earnings call, Murry stated that AOI's "CWDM full MSA spec 100G transceiver was our fastest-growing datacenter product line in the [third] quarter," with "revenue from 100G CWDM products increas[ing] by 21% compared to Q2." During the first quarter 2018 Conference Call, Defendant Murry similarly claimed that AOI "continue[s] to see a trend towards more CWDM and less PSM. I think that's been a pretty consistent theme of ours *for a number of quarters*."

56. Amazon and Facebook received CWDM4 transceivers from AOI throughout the Class Period.

2. Optical Transceiver Sales

57. Immediately prior to and during the Class Period, AOI's three largest internet data center customers were Amazon, Microsoft, and Facebook. The sales to the foregoing three customers consist almost entirely of optical transceivers.

58. Based on calculations using AOI's filings, analysts' reports and publicly available information, AOI's revenues from each of those customers were approximately as follows:

AOI EST. TOTAL REVENUE BY CUSTOMER ($m) (ALL BUSINESS SEGMENTS)

Quarter	Net Revenue ($m)	Amazon	Facebook	Microsoft	All Other Customers	Total
Q1 2016	$50.4	52%	N/A	25%	23%	100%
Q2 2016	$55.3	52%	N/A	25%	23%	100%
Q3 2016	$70.1	56%	N/A	19%	25%	100%
Q4 2016	$84.9	63%	9%	9%	19%	100%
Q1 2017	$96.2	56%	19%	19%	6%	100%
Q2 2017	$117.4	47%	27%	9%	17%	100%
Q3 2017	$88.9	10%	37%	24%	29%	100%
Q4 2017	$79.8	21%	33%	19%	27%	100%
Q1 2018	$65.2	14%	36%	26%	24%	100%
Q2 2018	$87.8	10%	52%	16%	22%	100%
Q3 2018	$56.4	15%	31%	22%	32%	100%

59. For the full year 2017, Amazon, Facebook and Microsoft represented 35.4%, 28.6%, and 13.8%, respectively, of AOI's total revenue.

C. Amazon and Facebook Are Required Under Supply Agreements With AOI to Provide Forecasts of Their Demand Six to Twelve Months in Advance

60. An agreement with Facebook entered into on December 20, 2017, effective November 8, 2017 and disclosed in heavily redacted form by the Company in a Form 8-K filed on February 21, 2018 (the "Facebook Supply Agreement") illustrates AOI's contracting practices with its largest datacenter customers.

61. According to the Facebook Supply Agreement, for calendar years 2019 and 2020, ***Facebook will provide "accurate 6 month rolling forecasts to AOI, identifying Facebook's potential future product needs and delivery expectations on a calendar quarter basis***." Furthermore, Facebook was obligated to provide ***quarterly purchase commitments*** for 2018 and "demand forecasts for the subsequent year. . . in [the] third calendar quarter of the current" calendar

year and "the parties will finalize the actual CY 2019 support and purchase commitment by *****."

62. The supply agreement also requires that "Facebook will purchase the balance of committed demand at the end of each respective quarter at the unit price agreed for the shortfall quarter pursuant to the table in Table 2" [table of negotiated quarterly price for the product for 2018 with exact amounts hidden]. Fred Chang, the Senior Vice President and North America General Manager, who reported directly to Defendant Lin, signed the Facebook Supply Agreement and Master Purchase Agreement on behalf of AOI.

63. According to analyst Mark Keheller in a May 2018 report, the Facebook Supply Agreement called for a minimum purchase commitment of ***$125 million in 2018.***

64. The Facebook Supply Agreement has a term of one year and may also be terminated for cause for, among other reasons, a material breach that is uncured within 30 days after written notice of such breach.

65. Defendant Murry explained this type of contracting on the February 21, 2018 earnings call:

> [A]nd I mentioned earlier and in the 8-K that it is a minimum commitment. ***This is how we operate with some of our other customers*** as well, in the sense that AOI, typically gets a share oftentimes a leading share with our customers. As sort of a minimum commitment, but oftentimes, depending on what competitors can actually produce and ship in a given quarter, we may have opportunities to take additional share.

66. In addition, AOI and Facebook entered into a Master Purchase Agreement, which had no termination date, but which provided for termination: for cause in the event of an uncured material breach by either party; for the shipment of uncorrected "non-conformities" in products shipped to Facebook; for an uncured "Epidemic Defect" of a (redacted) number or percentage of products shipped by AOI to Facebook; and at Facebook's "convenience."

67. Based on the publicly available information and information provided by the CWs, Amazon had a similar supply agreement. In fact, Defendant Murry stated during the August 3, 2017 earnings call that "we do have a significant amount of committed orders and a good forecast from ***all 3 of our [large data center] customers,***" including Amazon. Thus, the Individual Defendants knew by the start of the Class Period what Amazon's purchase commitments were for both 40G and 100G—prior to the actual drops in sales that AOI eventually disclosed.

68. As a result of their forecasting obligations under Amazon and Facebook's supply agreements, Defendants had close visibility into its top customers' demands, had committed minimum orders, and received projections from them. In fact, Defendants confirmed in their public statements that they had "good visibility" into their customers' needs. For example:

- So there's a couple of questions in there, I guess. The first one is, ***do we have good visibility into our customers? And I think the answer is yes***. I think we continue to see ourselves and I believe our customers see us as a key partner, as they rollout these new technologies. And so as a key and value partner for them, I think ***they're giving us the best visibility*** that they possibly can into their future needs. So I think we have good very visibility there across all of our major customers, including the new ones. … but overall the customers are basically purchasing what they led us to expect that they would purchase. And we feel comfortable with their plans for the future in terms of our capacity and our ability to meet their needs.
(February 23, 2017 Conference Call, Defendant Murry)

- ***Based on current orders and forecasts from our customers***, we believe that 2017 datacenter revenue should grow by more than 85% compared with 2016 and would include contributions from 3 hyperscale datacenter customers, each of whom will represent more than 10% of our annual revenue.
(May 4, 2017 Conference Call, Defendant Murry)

- As far as our plans for the use of those devices, right now, we're using every device that we can make in our internal production, basically. And ***given the forecast that we see from the customers***, I don't see that situation changing. . . .
(May 4, 2017 Conference Call, Defendant Murry)

- We expect to see strong growth from 2 out of the 3 large datacenter customers that we have and ***a resumption of growth from our largest customer.*** In addition to that -- you asked whether these are committed orders. There are some committed orders out there, not all of that expectation is committed at this point. ***But we do***

have a significant amount of committed orders and a good forecast from all 3 of our customers.
(August 3, 2017 Conference Call, Defendant Murry)

- Yes, so we don't really give that far out. It's still relatively early in the year. As we've mentioned, we've seen - we're looking at a pretty good second half. ***A lot of that is based on orders that we have committed, which is unusual for us to have that many committed orders in this early in the year***. But there's still a lot of work to do before we can confidently project what we're going to be for the whole year.
(May 8, 2018 Conference Call, Defendant Murry)

- No, I don't think our outlook has changed much from a quarter-ago. ***I think, the fact that we have a large portion of our business that's coming from, I would say, secure - more secured contracts, we've had in the past makes our visibility a little bit better typically.*** And so I think, nothing has changed really in our outlook from before.
(July 19, 2018 Conference Call, Defendant Murry)

69. Confidential Witness One ("CW1"), a sales executive in AOI'S Texas facility from May until October 2017 for both domestic and international customers purchasing AOI's laser chips who was responsible for managing customer relationships confirmed that at periodic intervals, including before the beginning of each year, AOI's customers, including Amazon and Facebook, were required under supply agreements to provide projections of their requirements for the coming year.[5] Customers communicated these projections to sales people via telephone calls or emails.

70. CW1 stated that projection data concerning all products sold by AOI was then entered into the SAP system. The SAP data was available Companywide to all people at AOI who were authorized to access the customer accounts, including the Individual Defendants. CW1 also stated that a file for each customer was maintained by the sales support and accounting teams,

[5] CW1 was supervised by a deputy salesperson, who in turn worked under a deputy salesperson named Peter Wang ("Wang"). Wang's manager was Fred Chang ("Chang"). All deputy salespeople reported to Chang. Defendant Murry introduced Mr. Chang during a March 2018 Investor Session at OFC as "our general manager for U.S. operations, basically our chief operating officer if you will for our U.S. operations."

containing that customer's supply/purchase contracts, non-disclosure agreements, production changes, purchase orders and invoices. Sales support personnel would notify production managers about the customer's product requirements and their desired timing for delivery.

71. In addition, CW1 attended regular weekly meetings with all salespeople in the Texas office, including those working on the Amazon and Facebook accounts that were also attended by Wang and Chang. At the meetings, salespeople reported sales numbers, and other developments with their accounts, including for Amazon and Facebook.

72. CW1 stated that after the weekly sales meetings, Chang apprised Defendant Lin about the status of all of AOI's accounts.

73. Accordingly, the Individual Defendants were aware of Amazon's and Facebook's demand at all relevant times hereto, including declining demand during the Class Period (discussed below) and well before they disclosed it to investors.

D. Throughout the Class Period, AOI Touted That It Held a Dominant Technological and Manufacturing Position in Cutting-Edge 100G Optical Transceivers When, in Fact, Due to Capacity Constraints and Quality Issues, AOI Was Rapidly Losing 100G Market Share

74. Throughout the Class Period, AOI falsely represented that, due to this supposed vertical integration, it was better equipped than its competitors to satisfy customers' shifting demands from 40G to 100G transceivers. As it stated during a February 23, 2017 (the first day of the Class Period) earnings call:

> **Our ability to internally manufacture lasers and light engines combined with our ability to quickly transition production between 40G and 100G products provides us with cost-leadership advantages, a faster time to market and the ability to quickly scale and adjust our throughput to meet growing demand.**

75. During the February 23, 2017 call, Defendant Murry further stated that AOI "expect[ed] to maintain [its] leadership position as [it] continue[d] the transition to 100G" and that

"the similarity between 100G and 40G modules really ***gives us an advantage in terms of being able to ramp that up quickly***." Murry also commented that AOI did not see the anticipated decline in 40G sales as "problematic because we can transition our manufacturing from 40G to 100G and it just gives us additional capacity on the 100G product. So I will say also that we don't really expect a sharp decline in 40G."

76. Another key way in which AOI purportedly distinguished itself was in its in-house manufacturing of laser chips within the vertical integration module. As Defendant Murry described the process in a March 22, 2017 Investor Session:

> So, we start with a wafer, a semiconductor material that basically devoid of active layers or active devices on there. Upon that substrate material, which we buy and other companies presumably buy as well, we do some process called epitaxy. That is we're growing additional layers on top of the substrate materials that actually form the laser itself, or in the case of the receiver, a photodiode.
>
> Those layers, essentially, are where all the action is. **We do that in-house and as we mentioned in the video, we're one of relatively small number of companies that actually has the capability in-house to grow these wafers and to do the rest of the laser manufacturing process. And I think that's the key differentiator because as you may hear at the show, lasers not only define the performance [to date extent] of these modules, but they're also critical to on-time delivery schedule and being able to ramp up as customer demand increases, which of course we're seeing in some of the markets that we're in.**

77. While Defendants publicly represented that AOI could make a seamless transition from one speed of transceiver to another, behind the scenes, the Company had supply chain issues, quality control issues and serious latent defects with its 25G laser chips, causing AOI to scramble to accommodate large-scale production of 100G transceivers to meet its increasingly demanding customers.

1. AOI's Production Yield on 100G Transceivers Was Abysmal During 2017

78. Confidential Witness 2 ("CW2") was employed at AOI in the Sugar Land, Texas facility as an engineer involved with optical module and transceiver development, as well as

manufacturing and procurement (i.e., procuring components that AOI did not manufacture itself at volume prices for the transceivers). CW2 worked for AOI for several years prior to the Class Period, leaving the Company approximately half-way through it.

79. During CW2's employment at AOI, CW2 attended meetings every Wednesday at 4:30 pm Central Time with all R&D managers at AOI's Texas facility. CW2 stated that yields for the 100G transceivers were discussed at these weekly meetings and a frequent topic of discussion was "yield issues in Taiwan," where the transceivers were assembled. CW2 explained that at AOI, each individual chip was supposed to be tested at each stage of the transceiver assembly process to determine if the device is functioning properly, and the portion that is found to do so is called the "yield."

80. According to CW2, management was constantly looking at all the yield numbers, and anything below 90% for a high-profile customer like Facebook or Amazon (who demanded low prices for their transceivers and thus tightened AOI's margins on sales to them) would definitely get management's attention. This is because yield is directly correlated with profitability and, thus, maintaining an acceptable level of yield is essential for chip manufacturers like AOI. As a May 18, 2018 report by McKinsey & Co. explained, "Yield optimization has long been regarded as one of the most critical, yet difficult to attain goals—thus a competitive advantage in semiconductor operations." Thus, yield is one of the most closely guarded secrets in the semiconductor industry. As semiconductors get more complex, "the risks to yield due to process variability and contaminations are ever increasing, as is the importance of continuously improving design and machine capabilities." Thus, the higher the yield, the more functional chips are produced and the higher a company's profitability and margins.

81. Attaining a sufficiently high yield for a new semiconductor chip, according to CW2, is a difficult proposition, but a critical one for AOI, which sought to maintain high margins in a competitive industry. Such a high yield rate was essential for maintaining the profit margins that supposedly made AOI competitive compared to other transceiver manufacturers, but the process of generating such results, according to CW2, takes long periods of sustained effort: "[w]hen you just start a new product, you can't get 90% yield immediately."

82. Efforts to achieve sufficiently high yields were made by AOI employees around the world, and up and down the corporate ladder. According to CW2, who personally spoke to Jason Chien, the director of the Taiwan factory in charge of transceiver production, during CW2's on-site visit to the Taiwan facility in mid-2017, Chien had to report directly to Defendant Lin on yields every couple of weeks throughout the Class Period either by video call, phone call or in-person.

83. CW2 stated that (contrary to Defendants' public assertions) it was difficult to achieve high production yields during the early months of manufacturing a new product. When making a new transceiver, AOI employees in Texas (overseen during the Class Period by Jun Zheng, the VP of the R&D Department in Texas) first design the product, develop a manufacturing process for it, and produce small quantities of transceivers. The Texas facility then passes the transceiver's design and process on to the Taiwan facility for mass production. If production yields were below AOI's 90% threshold, Defendants would send engineers from the Sugar Land facility to Taiwan to fix the problem.

84. For example, when AOI was having trouble with yields for its 40G transceivers before the Class Period, in 2015 and 2016, the Company was compelled to send an engineer from the Sugar Land facility to Taiwan to increase yields for completed transceivers to the Company goal of 90% from the then abysmal 40%.

85. Similarly, according to CW2, when AOI began production of the 100G transceiver in 2015, the production yield was only 40%. Thus, AOI was, again, forced to send engineers from the Sugar Land to Taiwan factory in 2017 to fix the problem. CW2 stated that yields for the 100G transceivers did not increase to acceptable levels of 80% to 90% until late 2017. CW2 knows this from attending the weekly R&D meetings and from discussions with Chien during CW2's July 2017 visit, when Chien told CW2 that yields were low and considered a big issue that required meetings often among management and many other people at the Company.

86. According to CW2, Defendants were aware of the yield, production delay, and quality issues with the 25G laser chips discussed at the R&D meetings from Lin's special assistant, Chan Chih (David) Chen, who attended the weekly meetings and promptly reported back to Lin throughout the Class Period. Before each earnings call during the Class Period, Jun Zheng, the VP of the R&D Department in Texas, reported directly to Defendant Lin on the specific yield numbers for AOI's products, including the 100G transceivers. Jun Zheng had five managers reporting to him, including three at the Sugar Land facility.

2. AOI's 25G Laser Chips Had Latent Defects Relating to the Chip Coating Throughout the Class Period

87. CW2 further explained that the process of transitioning from manufacturing chips for 40G transceivers to those for 100G transceivers was not a simple one because to increase the speed of a transceiver, AOI could not merely swap out one set of chips for another. Rather, it first needed to update the capabilities of the Texas facility where it manufactured transceiver chips. The 100G transceivers purchased by Facebook and Amazon require four 25G chips, while the 40G transceiver requires four 10G chips. According to CW2, the higher the speed, the more difficult it is to manufacture the chip.

88. According to CW2, by the summer of 2017, the Company was "desperate" to increase the Texas facility's chip production capacity by creating a new tooling or fixture to allow the Sugar Land facility to coat more chips at the same time. At least midway through the Class Period, the Sugar Land facility had yet to expand its chip coating capacity.

89. Thus, according to CW2, the main capacity constraints were on the chip production side. The difficulty in switching from one chip to another resulted in delays in manufacturing the necessary volume of chips, which in turn restricted AOI's ability to increase the volume of transceivers assembled in Taiwan.

90. Furthermore, CW2 learned that, both before and after CW2 left AOI, the coating on the 25G laser chips contained in the Facebook and Amazon 100G transceivers had reliability issues, which meant that the transceivers sold to large data center customers, including Amazon and Facebook, were intended to have a long lifespan, but in fact were prone to failure within two years, and that "if they fail in two years that's a problem."

91. According to CW2, in 2017, a former chip design engineer (referred to here as CW3) identified problems with the design and/or coating of the 25G laser chips, which CW3 described to CW2 as a "ticking time bomb" that would inevitably lead to the failure of 100G transceivers containing those chips. CW3 brought those problems to the attention of management. However, management refused to make any changes to the chip design or production. Because CW3 did not want to be associated with 100G transceivers containing known latent defects, CW3 resigned from AOI in December 2017.

92. CW2 recalled that 100G transceivers containing defective 25G laser chips were being sent to Amazon as early as December 2016.

93. CW2 further learned from CW3 that the 100G transceivers shipped out to Facebook in 2017 had reliability issues and had started to fail by no later than the second quarter of 2018, when AOI admittedly had to conduct additional substantial testing on the chips before shipment, at Facebook's request. CW3 learned of the failures from friends who work at Facebook and informed CW2 of the transceiver reliability problems there.

94. Consequently, far from allowing the Company to be nimble in responding to customer demand, the vertical integration model stymied AOI's ability to produce transceivers.

3. AOI Lacked the Necessary Quality Controls to Ensure Its 100G Transceivers Were Working Properly

95. Defendants were also aware that AOI lacked the necessary quality control to ensure its 100G transceivers were working. CW2 explained that AOI's hyperscale data center customers require AOI to provide quality assurance testing on large samples of the transceivers that are manufactured in Taiwan. The samples are either manufactured and tested in Taiwan, then sent to the data center customer, or they are tested in Taiwan, then tested in Sugar Land, then sent to the data center customer.

96. However, according to CW2, senior management, including the Individual Defendants, knew the quality control department at the Sugar Land manufacturing facility lacked the skills necessary to conduct quality assurance testing and RMA (return material authorization) troubleshooting for the transceivers sent back from the customers. Consequently, Defendants delegated the responsibility of testing transceivers to research and development engineers themselves. Fellow R&D engineers stated to CW2 that they were underequipped to do the job of both their normal work and the quality assurance, which was outside their job description.

97. As a result of AOI's lack of skill, experience, and resources to conduct proper testing and quality control, CW2 recalled an incident between March and June 2017 when AOI's

Taiwan facility actually sent a defective set of test transceivers to Amazon, which required high numbers of test devices for their quality assurance process. The customer tested the transceivers, the performance results were unfavorable, and the R&D transceiver group in Sugar Land was reprimanded. According to CW2, "You want to send Amazon your best quality products." But this time, "'[s]omething happened resulting in inferior parts being selected and then shipped, or the specs may have drifted out of target due to poor or rushed assembly." CW2 recalled that, at the 4:30 pm Wednesday meetings he attended, reports were presented concerning Amazon's complaints that sample transceivers provided by AOI which were not functioning properly and were not passing Amazon's internal qualification process.

E. Amazon and Facebook Reduce Their Orders of 100G Transceivers From AOI As They Turn to Other Sources for Future Demand Due to Defective 100G Transceivers and AOI's Inability to Meet Their Demand

98. While the Company was struggling to meet customer demand as a result of product quality and yield issues, AOI knew that customers had begun purchasing 100G transceivers elsewhere. Contrary to the market's expectation—repeatedly encouraged by Defendants—that AOI's vertical integration strategy positioned the Company to easily transition from 40G to 100G manufacturing and sales, AOI was failing to generate adequate yields to satisfy demand and was shipping defective transceivers to its customers. As a consequence of these vertical integration failures, AOI misrepresented its ability to transition its sales from 40G to 100G transceivers.

1. Amazon Lowers Forecasts at the Start of the Class Period and Seeks 100G Transceiver Parts From MACOM and Fabrinet

99. By May 2017, if not earlier, it was clear to Defendants (or they recklessly disregarded the fact) that large datacenter customers, particularly Amazon, were pursuing alternatives to AOI's optical transceivers, including through the so-called "merchant model," i.e., end-users directing the custom assembly of transceivers using parts from a variety of suppliers.

100. A leader in the merchant model of transceiver production is MACOM Technology Solutions Holdings Inc. ("MACOM"), a semiconductor manufacturer that provides large cloud data centers with lasers, silicon photonics, and optical subassemblies. During MACOM's April 25, 2017 earnings call, the company stated: "We're now being sponsored actively pulled by top cloud data center customers to provide various solutions through various customers and channels to fulfill what we expect will be insatiable demand. . . ." On May 16, 2017, at the Cloud Data Center Forum, MACOM discussed the emerging trend of large datacenters purchasing optical transceiver parts using the "merchant model" where the datacenter client purchases from MACOM and can direct where the component goes—whether to another manufacturer in the chain of production (like AOI) or directly to the datacenter itself. The optical industry is supply constrained and most of the large datacenters are "professional supply chain managers." Thus, with the "merchant model" the large datacenters use their supply chain expertise to "evaluat[e] and stickhandl[e] technology providers . . ."

101. AOI was aware of this "merchant model" and MACOM's increasing business with hyperscale data centers, including Amazon. Indeed, Defendant Murry specifically addressed this issue during a May 4, 2017 conference call. During that call, he contended that "economically, [the merchant model] doesn't make sense" because the layers of complexity and additional profit margins associated with having multiple companies manufacture these datacenter products would not "result[] in a product that's less expensive for the end customer than buying it from AOI even at the profit margins or gross profit levels that we're at today." Defendant Lin added that the companies engaged in the merchant model would have "gross margin[s] [that] will be very low compared to AOI's" because the gross margin AOI obtained would have to be "divide[d] [] by 3 companies . . . selling laser, doing types of manufacture, selling transceiver or selling chips."

102. On June 26, 2017, Needham & Co. analyst Alex Henderson reported that Fabrinet had won a project to provide Amazon with 100G CWDM4 optical modules "based on Macom components," with production of the 100G multiplexers expected to accelerate in July 2017. More specifically, Amazon partnered with Fabrinet to produce 100G CWDM4 optical transceivers for itself. Using the merchant model described herein, MACOM's components are being used by Amazon and placed in systems supplied by Fabrinet. Essentially, as a result of AOI's inability to meet demand due to product quality and other issues, Amazon has been piecing together its own 100G transceivers using components from MACOM and Fabrinet. MACOM's datacenter revenues show the fruits of this alliance, growing 107% year-over-year from the company's quarter-ended December 30, 2016 to December 29, 2017.

103. Amazon's reduced forecasts, according to CW1, were recorded in the SAP system to which the Individual Defendants had access.

104. Nevertheless, on July 13, 2017, AOI issued a press release announcing preliminary second quarter 2017 earnings that did not address the changed competitive landscape, the known expected decline in sales to Amazon, or the manufacturing defects plaguing AOI's laser chips. Defendant Lin attributed AOI's above-guidance results to "improvement[s] in our manufacturing costs, capacity expansion and solid execution by our production team:"

> "I'm pleased to announce that we expect to deliver another record quarter with our top and bottom-line results expected to exceed our guidance. said Dr. Thompson Lin, Applied Optoelectronics, Inc. founder, president and CEO. "Again, this quarter, our results were driven by improvement in our manufacturing costs, capacity expansion and solid execution by our production team. We are pleased with our performance and look forward to sharing the additional details of our second quarter results on our conference call in August."

105. As discussed below, just two weeks later, AOI would abandon its future guidance due to purported lower demand from Amazon for the 100G transceiver as the truth slowly leaked to the market over a series of partial disclosures.

2. Facebook Follows Suit and Seeks to Fill its 100G Demand from Other Sources As a Result of AOI's Defective and Unreliable Transceivers

106. During the remainder of the Class Period, AOI continued to vaunt the merits of its proprietary manufacturing technology and vertically integrated processes as the driver of future sales to hyperscale data center customers. Nevertheless, AOI continued to sell 100G transceivers containing defective 25G laser chips to those customers.

107. At a November 5, 2017 Needham Networking & Security Conference ("the November 2017 Conference"), Defendant Murry disclosed that (after the loss of a significant part of Amazon's business) AOI was now being forced to "diversify[] our customer base" and had "40 active qualifications ongoing right now for 100-gig and 200-gig products."

108. Starting in May 2018, subtle signs of Facebook's dissatisfaction were beginning to emerge. On May 8, 2018, Defendants reported in AOI's Form 10-Q for the period-ending March 31, 2018 that sales to another large data center customer had decreased demand for both 40G and 100G transceivers:

> During the three months ended March 31, 2018, revenues in the internet data center market decreased by $29.0 million. **This decrease was driven primarily by decreasing demand for our 40 Gbps and 100 Gbps transceivers as one of our customers reduced its demand for optical transceivers due to changes in the way they architect their network.**

109. By August 3, 2018, an analyst at Craig-Hallum expressed concern that AOI would not meet its 2H 2018 projections because Intel would "likely [] gain a leading share (~50%) of [Facebook's] 100G CWDM4-OCP volumes" and stated that an AOI competitor was "also likely a

meaningful supplier." The analyst also stated his expectation that AOI's 40G business, which represented 53% of 1Q 2018 data center revenues and which the analyst believed was driven by Microsoft, "could decline materially by year's end."

110. Defendants remained coy about looming problems with product failures at Facebook, now AOI's biggest customer. On August 7, 2018, Defendant Murry alluded to problems with the quality of transceivers being sent to AOI's customers, stating that unidentified "certain customers" were now requiring AOI to take additional testing steps before shipping transceivers:

> ***We are also adding additional testing steps that are required by certain customers***. In the short-term, these additional steps will constrain our manufacturing throughput somewhat, but we expect to once again have sufficient capacity to meet demand in Q4 of this year. As Thompson mentioned, our proprietary optical platform is also a key factor and optimizing the cost structure of our datacenter transceivers.
>
> * * *
>
> It applies the multiple SKUs and it applies the multiple customers. It's data that we need to take to get a large enough sample size for some of the statistical analysis that we need to do for certain customers, including some existing and new customers, so we're doing that across the board.

111. During the August 2018 Call, Defendant Murry admitted that the additional required testing was necessary to obtain new customers and would "add a few days to our manufacturing." Thus, the vertical integration model would not allow for a quick transition as previously represented and AOI would be unable to meet customer demand:

> Yes, so we were saying in the prepared remarks, is that ***we are implementing some additional testing procedures as we continue to diversify our customer base***. Different customers have different requirements in terms of what they expect to see relative to design testing and so on and so forth. So we're undertaking some additional testing steps in the manufacturing. ***So will -- what it does is it adds a few days to our manufacturing throughput, it takes a little bit longer to manufacture the transceivers,*** it doesn't -- it's not going to meaningfully impact of the cost of the modules. But it will link them the time that it takes them to manufacture them***. So in this quarter, we expect that to constrain our production. In other words, there will be more demand than we can supply in this quarter***, but as we said in our prepared remarks, by the fourth quarter -- early in the fourth quarter, we expect that to be normalize. [. . .] It applies to multiple SKUs and it applies to multiple

> customers. ***It's data that we need to take to get a large enough sample size for some of the statistical analysis that we need to do for certain customers, including some existing and new customers***, so we're doing that across-the-board.

112. Defendant Murry did not disclose, however, that this customer was Facebook and that the impetus for the further testing was AOI's delivery of 100G transceivers containing defective 25G laser chips.

113. Similarly, the Second Quarter Form 10-Q filed with the SEC on August 8, 2018 for the period-ending June 30, 2018 revealed a continuing decrease in demand for 40G and 100G transceivers:

> The decrease in revenue during the three months ended June 30, 2018 was driven primarily by decreased demand for our 40 Gbps and 100 Gbps transceivers as one of our customers reduced its demand for optical transceivers due to changes in the way they architect their network.

114. Then, at an August 8, 2018 Intel event, Facebook's VP of Infrastructure commented that the social media company was rolling out Intel transceivers at scale.

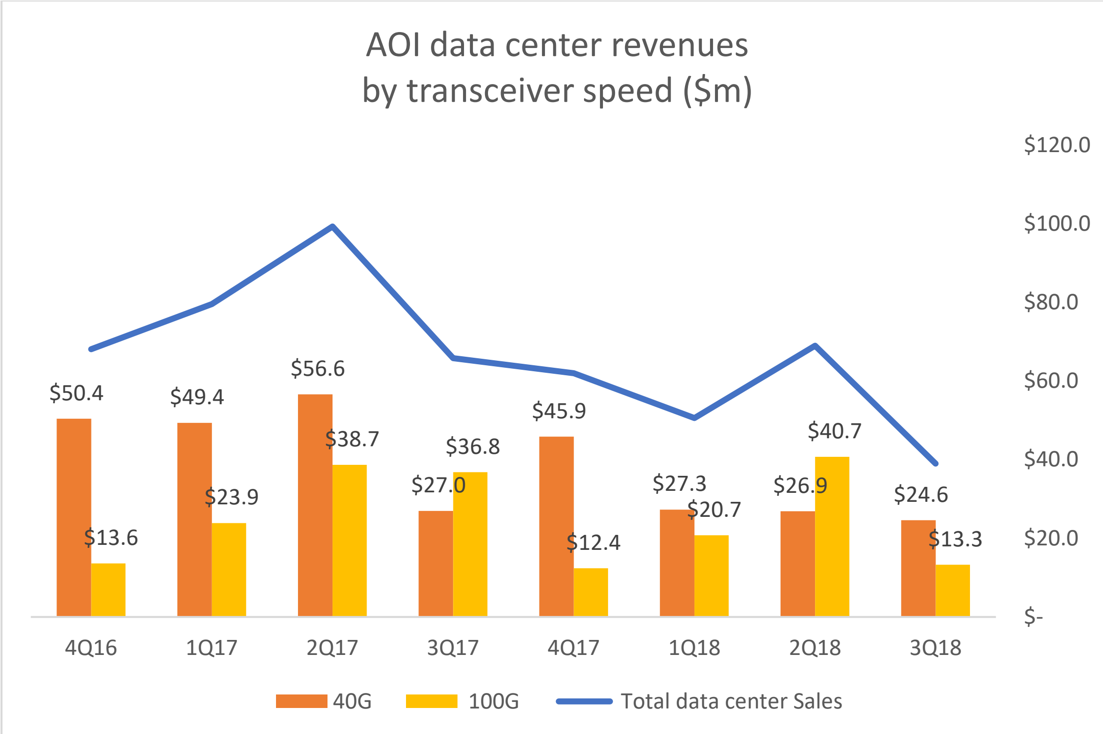
115. It was only in late September 2018 that investors began to learn why AOI's relationship with Facebook was crumbling. After conducting industry checks, Loop Capital Markets reported on September 27, 2018 that AAOI was having product quality issues in 100G transceivers that were being sold to Facebook. As AOI was compelled to admit the following day, the problem required the Company to ***suspend all shipments of the product to Facebook***. Although AOI reported the problem as isolated and temporary, a Rosenblatt Securities analyst reported on November 1, 2018 that "AAOI's laser quality issue seems to have returned" and that, as a result, "we believe AAOI will not be able to continue shipping to Facebook."

116. Thus, the laser chip manufacturing problems identified by CW2 in early 2017 persisted through at least the third quarter of 2018—and resulted in the successive loss of business from Amazon and then Facebook, AOI's two biggest customers.

3. The Pattern of 40G and 100G Sales During the Class Period Evidences Consistent Failures to Obtain Market Share As a Result of Low Yields and Quality Issues With 100G Transceivers

117. The charts below quantify AOI's failure to obtain or sustain the growth of its 100G transceiver business, due to low yields and quality issues affecting its sales to Amazon and Facebook. AOI's sales of 100G exceeded those of 40G only twice: in Q3 2017, when AOI foresaw (but hid from investors) the loss of significant 40G business from Amazon, such that the anemic 100G business temporarily grew as a percentage of AOI's total revenues; and in Q2 2018, when AOI was knowingly sending large numbers of 100G transceivers with defective 25G lasers to Facebook. As a direct consequence of the failure of those 100G transceivers, AOI's revenues from 100G transceiver sales dropped from approximately $40 million in Q2 2018 to approximately $13.3 million in Q3 2018. Thus, due to the failure of its vertically integrated manufacturing model, and contrary to its statements throughout the Class Period about its ability to capture 100G market share, ***AOI has made less 100G revenue in the third quarter of 2018 than it did in the fourth quarter of 2016.***

AOI DATA CENTER REVENUES BY TRANSCEIVER SPEED ($m)			
Quarter	**40G**	**100G**	**Total**
4Q16	$50.4 (74%)	$13.6 (20%)	$68.1
1Q17	$49.4 (62%)	$23.9 (30%)	$79.6
2Q17	$56.6 (57%)	$38.7 (39%)	$99.3
3Q17	$27.0 (41%)	$36.9 (56%)	$65.8
4Q17	$45.9 (74%)	$12.4 (35%)	$62.0
1Q18	$27.3 (53%)	$20.8 (41%)	$50.6
2Q18	$26.9 (39%)	$40.7 (58%)	$69.0
3Q18	$24.6 (63%)	$13.3 (34%)	$39.0



V. <u>DEFENDANTS' MATERIALLY FALSE AND MISLEADING STATEMENTS</u>

118. Throughout the Class Period, Defendants made a variety of misstatements and misleading omissions which can be organized into the following categories: (1) the competitive and technological advantages of vertically integrated manufacturing; (2) the threat of the merchant model; and (3) future customer demand. The specific statements Plaintiff alleges are false and misleading within the quoted language below are bolded and underlined.

A. <u>False and Misleading Statements Concerning the Competitive and Technological Advantages of AOI's Vertically Integrated Manufacturing Platform</u>

1. <u>The February 2017 Press Release and Earnings Call</u>

119. The Class Period begins on February 23, 2017, when AOI issued a press release announcing its fourth quarter and full-year 2016 financial results (the "February 2017 Press

Release").[6] On the same day, after market close, the Company held an investor call to discuss the Company's fourth quarter and full year 2016 financial results (the "February 2017 Call").

120. In the February 2017 Press Release, Defendant Lin falsely represented to investors that AOI's vertical integration model gave the Company the ability to get to market faster with the 100G transceiver and quickly scale to meet the demand of its largest customers, stating:

> **Our ability to internally manufacture lasers and light engines provides us with cost-leadership advantages, a faster time to market, and the ability to quickly scale to demand. Looking ahead, as the 100G transition accelerates this year, we see the opportunity to build on our momentum and expand our market leadership.**

121. Defendant Murry echoed Lin's statements during the February 2017 Call, stating:

> **Our ability to internally manufacture lasers and light engines combined with our ability to quickly transition production between 40G and 100G products provides us with cost-leadership advantages, a faster time to market and the ability to quickly scale and adjust our throughput to meet growing demand.**
>
> * * *
>
> And I think when you are in a situation where supply of some of those components may be constrained, or the overall industry capacity is not what is needed to meet the demand, **if the company that has the ability to ramp up quickly by virtue of being integrated in their production like we are** that it will do better I think than others. **And honestly I think that that's the situation that we're in right now, and I think we've been able to start to prove out the value of that vertical integration strategy.**

122. The above statements above were materially false and/or misleading when made because:

> i. AOI was taking shortcuts in the manufacturing and quality assurance of its 100G transceivers to increase manufacturing yields, lower costs, and maintain high gross margins, including, at the specific direction of Defendants, designating unqualified and overworked R&D engineers to perform the quality control function.

[6] Unless otherwise noted, all press releases referred to in this section were attached as Exhibit 99.1 to a Form 8-K filed by AOI with the SEC on the date of the press release.

ii. CW2 stated that, as a result of AOI's lack of quality control, beginning in the first half of 2017 or earlier, AOI was sending its datacenter customers (which included Amazon) 100G transceivers containing 25G laser chips that had faulty chip coatings, and thus were prone to failure (reliability issues).

iii. Defendants received oral and written reports from weekly R&D meetings showing low manufacturing and assembly yields for its 25G chips and 100G transceivers of as low as 40%, well below the 90% that Defendants expected, demonstrating AOI was experiencing significant production shortfalls due to the manufacturing of defective laser ships and thus was unable to meet Amazon's demand requirements.

iv. Chien, who reported yields directly to defendant Lin by video call, phone call or in person every couple of weeks throughout the Class Period, would have informed Defendant Lin that yield in Taiwan through Q3 2017 was as low as 40% and well below the 90% AOI needed to be profitable;

v. Defendants knew from the SAP system and Amazon's contract requirements that Amazon had significantly reduced its demand for 100G transceivers as of the start of the Class Period according to its contractual obligations under a supply agreement that required Amazon to provide AOI with six to twelve-month forecasts.

vi. According to CW2, as AOI was trying to transition from 40G to 100G, AOI lacked sufficient production capacity and was "desperate" to increase the Sugar Land facility's chip production capacity by creating a new tooling or fixture to allow it to coat more chips at the same time and had not done so as of summer 2017.

vii. Defendants effectively admitted on September 28, 2018 AOI had sold to its major datacenter customers defective 100G transceivers containing 25G laser chips that were known to be prone to long-term failure.

123. As a result of (i) to (vii) above, AOI's vertical integration model was faulty and lacked the ability and capacity to transition quickly (if at all) from 40G to 100G manufacturing and thus could not get to market "faster" or quickly scale up to meet customer demand, as represented. Moreover, AOI's faulty vertical integration model did not allow AOI the "ability to internally manufacture lasers and light engines" to "drive further growth as datacenter operators

transition to 100G." Because AOI in fact lacked the touted production capacity and was making defective transceivers and transceiver components for the 100G, AOI was not better situated than other transceiver manufacturers who were "constrained" to obtain "supply of some of those components" and AOI could not "ramp up quickly by virtue of being integrated in their production."

124. In touting AOI's vertical integration model, Defendant Murry falsely claimed during the February 2017 Call that the transition between 40G and 100G transceivers would be seamless:

> I think we can't emphasize enough that the light engines, the manufacturing of the subassembly that includes the lasers and the rest of the optical components - - **having our own in-house capability to do that and having a significant manufacturing infrastructure for that by virtue of the similarity between 100G and 40G modules really gives us an advantage in terms of being able to ramp that up quickly.**

125. The above statement above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above.

126. During the February 2017 Call, Defendant Murry responded to a question from Troy Jensen of Piper Jaffray about the decline in demand for 40G transceivers claiming 100G sales would make up for any loss in 40G sales:

> **That decline, really, we don't expect to be problematic because we can transition our manufacturing from 40G to 100G and it just gives us additional capacity on the 100G product**. So I will say also that we don't really expect a sharp decline in 40G.
>
> I think others have maybe speculated that that decline was going to be swift. I think there's a lot of reasons why customers can't transition completely away from 40G in a short timeframe. **So we expect it will be a gradual decline and that 100G will more than make up for that.**

127. The above statement above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above. Moreover, due to the manufacturing and

product issues with the 25G laser chips, Amazon and other customers would not be transitioning to the 100G transceiver and, instead, Amazon was lowering its 100G forecasts and looking to purchase more 40G transceivers. Thus, AOI would not have "additional capacity on the 100G product" as represented and the 100G would not be able to make up for any loss in 40G sales.

128. During the February 23, 2017 Call, Defendant Murry also stated,

> Well, basically we're using the capacity that we have as we put it online. I think there's two ways of looking at it. There's capacity in terms of current equipment and manpower and we're constantly adding to that capacity. And so that's kind of a moving target. I think the bigger picture is that we spent, as you know, we spent heavily last year on new building infrastructure, particularly here in Sugar Land but also in our overseas operations as well.
>
> **<u>And that gives us an ability to have the physical infrastructure to put new equipment in to be able to continue that ramp. So on both those counts, I think we've been able to keep up with our customers' demand and actually I think we've been able to gain some incremental advantage over competitors who maybe didn't have that sort of latent capacity available to help customers when they saw a surge in demand.</u>**

129. The statements above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above. Moreover, as a result of the product and manufacturing defects associated with the 100G transceiver, AOI was unable to keep up with Amazon's hefty demand and was experiencing production shortfalls from yield and reliability issues.

2. <u>The 2016 and 2017 Forms 10-K and the 1Q 2017 to 2Q 2018 Forms 10-Q</u>

130. Defendants Lin and Murry signed all of the Forms 10-K and 10-Q filed by AOI with the SEC during the Class Period.[7]

[7] Annual Report on Form 10-K with the SEC for the year-ended December 31, 2017 (the "2017 10-K," filed Feb. 28, 2018); Annual Report on Form 10-K with the SEC for the year-ended Dec. 31, 2016 (the "2016 10-K," filed Mar. 9, 2017); Quarterly Report on Form 10-Q for the three

131. Both the 2016 and 2017 10-Ks falsely claimed that AOI's vertical integration model gave it a decisive competitive advantage by providing better quality control of AOI's products, reduced costs and the ability to transition to new products quickly:

> The internet data center market is our largest and fastest growing market. Our customers in this market are generally large internet-based ("Web 2.0") data center operators, to whom we supply optical transceivers that plug into switches and servers within the data center and allow these network devices to send and receive data over fiber optic cables. The majority of the data center optical transceivers that we sell utilize our own lasers and subassemblies (we refer to the transceivers subassemblies as "light engines"), and **we believe that our in-house technology and manufacturing capability for these lasers and subassemblies gives us an advantage over many of our competitors who often lack either development or manufacturing capabilities for these advanced optical modules.** 2016 10-K at 3-4; 2017 10-K at 4.
>
> * * *
>
> ***Deliver high quality, reliable products in high volume*** [emphasis in original]. **As a vertically integrated supplier, we are able to monitor and maintain quality control throughout the production process, using our internally produced components where possible for our final products**. With manufacturing facilities in the U.S., Taiwan and China, we can support high volume production and timely delivery for our customers around the world. 2016 10-K at 5; 2017 10-K at 6.
>
> * * *
>
> With a vertically integrated manufacturing process, we produce many of our own laser chips and other parts required to manufacture our optical components. **Through this model, we are able to reduce development time and product costs as well as enhance quality control.** We incorporate our own components into our transceivers, subsystems and equipment products wherever possible. In instances where we do not produce components ourselves, we source them from external suppliers and regularly evaluate these relationships in an attempt to reduce risk and lower cost. 2016 10-K at 10; 2017 10-K at 10.

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months ended Mar. 31, 2017 (the "1Q 2017 10-Q," filed May 9, 2017). Quarterly Report on Form 10-Q for the three months ended June 30, 2017 (the "2Q 2017 10-Q," filed Aug. 8, 2017); Quarterly Report on Form 10-Q for the three months ended Sept. 30, 2017 (the "3Q 2017 10-Q," filed Nov. 8, 2017); Quarterly Report on Form 10-Q for the three months ended Mar. 30, 2018 (the "1Q 2018 10-Q," filed May 8, 2018); Quarterly Report on Form 10-Q for the three months ended June 30, 2018 (the "2Q 2018 10-Q," filed Aug. 8, 2018) (the "False and Misleading SEC Filings").

132. The above statement above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above. Thus, AOI's purported in-house manufacturing capability did not give it the advantage over competitors that it was representing as Amazon was already decreasing its demand and going elsewhere to fill its transceiver needs due to ***quality control issues*** resulting from manufacturing and product defects relating to the 100G transceiver.

133. The 2016 10-K, 2017 10-K, and all 10-Qs during the Class Period also falsely touted the purported advantages of AOI's vertical integration model and that, as a result, AOI's lasers were "proven" reliable:

> **Our vertically integrated manufacturing model provides us several advantages, including rapid product development, fast response times to customer requests and control over product quality and manufacturing costs**. We design, manufacture and integrate our own analog and digital lasers using a combination of Metal Organic Chemical Vapor Deposition, or MOCVD, and our proprietary Molecular Beam Epitaxy, or MBE, fabrication process, which we believe is unique in our industry. We manufacture the majority of the laser chips and optical components that are used in our products. **The lasers we manufacture are proven to be reliable over time** and highly tolerant of changes in temperature and humidity, making them well-suited to the CATV and FTTH markets where networking equipment is often installed outdoors. 2016 10-K at 4; 1Q 2017 10-Q at 19-20; 2Q 2017 10-Q at 19; 3Q 2017 10-Q at 20; 2017 10-K at 4; 1Q 2018 10-Q at 21; 2Q 2018 10-Q at 21-22.

134. The above statement above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above. Moreover, according to CW2, AOI was experiencing latent reliance issues with its 100G transceivers and thus, its laser chips were unreliable, resulted in AOI experiencing production shortfalls and Amazon reducing its demand for 100G transceivers as of the beginning of the Class Period while it sought supply elsewhere.

135. In the 2016 and 2017 10-Ks, AOI falsely attributed its competitive strengths to its vertical integration model and resulting product reliability:

> We believe the principal competitive factors in our target markets include the following: use of internally manufactured components; product breadth and functionality; timing and pace of new product development; breadth of customer base; technological expertise; reliability of products; product pricing; and manufacturing efficiency. **We believe that we compete favorably with respect to the above factors based on** our MBE and MOCVD processes, **our vertically integrated model, the performance and reliability of our product offerings, and our technical expertise in light engine design and manufacture.**

2016 10-K at 11-12; 2017 10-K at 11-12.

136. The above statement above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above.

3. The March 22, 2017 Optical Fiber Communication Conference and Exhibition Conference

137. On March 22, 2017, Defendant Murry participated in an investor session at the Optical Fiber Communication Conference and Exhibition ("OFC") (the "2017 OFC Conference") where he spoke at length about the benefits of AOI's vertically integrated manufacturing.

138. Defendant Murry, describing AOI's chip-making process, stated at the 2017 OFC Conference:

> So, we start with a wafer, a semiconductor material that basically devoid of active layers or active devices on there. Upon that substrate material, which we buy and other companies presumably buy as well, we do some process called epitaxy. That is we're growing additional layers on top of the substrate materials that actually form the laser itself, or in the case of the receiver, a photodiode.
>
> Those layers, essentially, are where all the action is. **We do that in-house and as we mentioned in the video, we're one of relatively small number of companies that actually has the capability in-house to grow these wafers and to do the rest of the laser manufacturing process. And I think that's the key differentiator because as you may hear at the show, lasers not only define the performance [to date extent]** [bracketed text in original] **of these modules, but they're also critical to on-time delivery schedule and being able to ramp up as customer demand increases, which of course we're seeing in some of the markets that we're in.**

139. The above statement above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above.

140. Defendant Murry further emphasized the purported benefits of AOI's vertical integration manufacturing process at the 2017 OFC Conference, stating:

> **So what does vertical integration do for us? Faster time to market, because we don't have to rely on a very long supply chain of different suppliers that all have to align in terms of schedules, we can do most of that in-house**. So, we tend to be faster time to market, perhaps more than -- in time to market, I should say, what we're really talking about here is time to volume.
>
> **That is there maybe companies out there that can deliver a small quantity of transceivers in a very short time, but what really matters to our customers is how fast can we get them the volumes that they need within their applications. So in the data center, it's not about making the first few samples or the first 100 units, it's about how fast can you really scale the business. And I think vertical integration gives us a big advantage in terms of time to scale.**

141. The above statement in paragraph 140 was materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above. Moreover, as a result of numerous product and manufacturing issues relating to the 100G, AOI's in-house processes could not provide AOI with the ability to quickly "scale" to meet demand for 100Gs because, as CW2 recounted, during the Class Period, AOI was unable to rapidly produce defect-free transceivers, as illustrated by AOI's shipment to Amazon of a smaller set of defective *test* transceivers during March to June 2017.

142. At the 2017 OFC Conference, Defendant Murry also stated,

> So one of themes that AOI has promulgated throughout the years, especially in our data center business is we like to keep a great deal of commonality in terms of the way that products are designed and manufactured from one generation of products to another. **That gives us the ability to flexibly shift from -- for example in the data center world from 40 gigabits per second to 100 gigabits per second without having through radically change our production process or invest in massive amounts of new equipment or whatever. And we can also change back and forth flexibly as customer demand changes, again a very important aspect of vertical integration particularly to our customers.**

> **And finally rapid response to the customer and market demand**, so as we see these shifts and changes in the marketplace, the one thing I can say about the optical industry is that it's a very fast moving market. There's a lot of shifts and demand from time to time and as we bring our new customers, those demands change as well because not every customer needs exactly the same type of product. **So, the ability to flexibly change or adapt to the customer demand I think is also key part of that vertical integration strategy.**

143. The above statement above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above and, thus, it was false and misleading to tout that AOI's vertical integration gave it "the ability to flexibly shift" from 40G to 100G, to "change back and forth flexibly as customer demand changes," and to "flexibly change or adapt to the customer demand."

144. At the 2017 OFC Conference, Defendant Murry also stated,

> We do see a lot of pull from customers to add capacity. Fortunately, we made a lot of investments last year and the year before that allow us to have -- **at least AOI to have the ability to add that capacity relatively quickly and I think we're getting a pretty strong customer response, a positive customer response based on our -- the plans that we've disclosed to them about how we plan to meet their upcoming increasing demand.**
>
> Some facts last year, we increased our production of data center transceiver products last year by about 70% from Q1 to Q4, but we didn't increase our headcount at all. And one of the things that we did last year was we spent a lot of money -- and actually the year before, but we spent a lot of money and time doing process automation, being able to do more of the production that we do in an automated fashion. That is much easier to scale than manual -- more manual processes, and so that investment along with the investment that we made in the fab, really gives us the ability to scale our production pretty rapidly and we think **we're doing a reasonably good job of anticipating and meeting the demands of the customers** have told us that they're going to need for this year and next year.

145. The above statement above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above. Moreover, AOI was unable to meet Amazon's demands due to low yields and faulty chip coating issues. Thus, Amazon had already started transitioning its business elsewhere.

B. <u>False and Misleading Statements Concerning the Threat of the Merchant Model</u>

146. On May 4, 2017, AOI issued a press release announcing the Company's first quarter 2017 financial results (the "May 2017 Press Release") and, after market close, held an investor earnings call (the "May 2017 Call"). During the May 2017 Call, Defendant Murry stated, in response to a Cowen analyst's question concerning white-box model competition:

> As of now, you don't see -- you don't foresee, you don't anticipate being intercepted in a meaningful way at any of Amazon, Microsoft or Facebook. There's nothing you're aware of at this point that will cause you concern that there's a share shift to one or more other competitors?"
>
> [Murry:] "**<u>That's correct.</u>**"

147. During the May 2017 Call, Defendant Murry also stated, in response to a Raymond James analyst's question, "Can you help us understand the potential for [the merchant model] as a competitive threat?",

> So we have a great deal of vertical integration, as we've talked about ever since we went public. We do a lot of these things in house. We make our own lasers, we build our own light engines, we do our own production, we do our own testings, okay? There are companies out there that have talked about sort of disaggregating that, if you will, and one company will grow the laser chip, somebody else will do the assembly, somebody else will do the test, somebody makes the chips, et cetera, et cetera, okay. Relative to our business model – I mean, this has been the big advantage of our business model. And I will point out to you, at this point, we've got a 5-plus year track record in the datacenter industry of high -- highly successful business, as evidenced by this quarter and our previous -- really, going back 4, 5 years, you can look at our results. The vertically integrated business model, we believe, is the best way to economically manufacture these datacenter products. **<u>And there are competitors out there that are talking about doing different business models. But economically, that just doesn't make sense</u>.** If you have to add multiple companies' profit margins in there along with all the vagaries of the manufacturing that is yields and things that change over time and inventory management, we've done the modeling and there's just no way that, that results in a product that's less expensive for the end customer than buying it from AOI even at the profit margins or gross profit levels that we're at today. So yes, it's possible to do it that way potentially, but it doesn't result in a lower-cost product. [. . .] **<u>And all of that assumes that they would be as good as AOI is at all of those operations, which we don't think is possible given the fact that we are the demonstrated leader in this industry.</u>**

148. The statements above were materially false and/or misleading when made because:

i. Amazon, AOI's largest customer at the time accounting for approximately 35% of AOI's revenues in 2017, had already began moving toward the merchant model and was ordering transceiver components from manufacturers including MACOM, which publicly disclosed this strategy as early as April 2017, and Fabrinet

ii. Defendants knew from the SAP system and Amazon's contract requirements that Amazon had significantly reduced its demand for 100G transceivers.

iii. Defendants knew or recklessly disregarded that, as Fabrinet and MACOM publicly disclosed as early as April or May 2017, Amazon was acquiring components for its transceivers elsewhere;

iv. Because the disadvantages of the "merchant model" articulated by Defendant—including problems with "testing" and that "economically, [the competitors' model] doesn't make sense"—were shared by the "vertical integration" model, it was false and misleading to tout AOI's "vertical integration" and its status as "the demonstrated leader in this industry" as ensuring that "different business models" would not "be as good as AOI is at all of those operations."

C. False and Misleading Statements Concerning Future Demand

149. During the February 2017 Call, Defendant Murry falsely claimed, in response to an analyst's question regarding the ramp-up in production for 100G that customers were ordering what they said they would:

> The other question that you had was related to what Troy was asking about too in terms of the 100G ramp up. What I could say is we're tracking as expected on the 100G. I think there's always hiccups in the plan from time to time, **but overall the customers are basically purchasing what they led us to expect that they would purchase. And we feel comfortable with their plans for the future in terms of our capacity and our ability to meet their needs.**

150. The statement above was materially false and/or misleading when made because, as a result product AOI's defective 100G transceivers, faulty vertical integration model, lack of quality control, low yield and reliability issues, Amazon had already reduced its forecasted orders

and was going elsewhere to fill demand. Thus, customer demand was not, as Defendants represented, consistent with prior forecasts.

151. During the May 2017 Call, Defendant Murry touted the Company's status as a purported "cost leader" as leading to its future success in both 40G *and 100G* transceivers:

> Based on current orders and forecasts from our customers, we believe that 2017 datacenter revenue should grow by more than 85% compared with 2016 and would include contributions from 3 hyperscale datacenter customers, each of whom will represent more than 10% of our annual revenue. [. . .] So when you talk about for AOI, will 40G be higher in 2017 compared to 2016, the answer is probably yes. However, I would caution that, that doesn't necessarily mean that that's the same thing for the industry, right, because we added a significant new customer for 40G during the year. Overall, I would say in general terms, while I can't speak to the specifics of the industry, I think it's widely acknowledged and most people would agree that 100 gig is growing. **<u>We were first to market with 100-gig products, first to volume with those products and we believe we're the cost leader on those products. So I think we're going to be very successful in both 100G and 40G throughout the year.</u>**

152. The statement above was materially false and/or misleading when made for the reasons set forth in paragraphs 122 and 150 above. Moreover, Defendants knew, based on Amazon's minimum purchase obligations and forecasted requirements documented in the SAP system, that demand for AOI's 100G transceivers was not going to grow at the rate Defendants represented (if at all) because Amazon had committed order amounts and gave purchase forecasts to AOI throughout the Class Period. In light of these facts, it was false and misleading to state that AOI could use its "first to market" status to be "very successful in both 100G and 40G throughout the year."

VI. THE TRUTH IS REVEALED OVER SEVERAL PARTIAL CORRECTIVE DISCLOSURES WHILE DEFENDANTS CONTINUE TO MISLEAD INVESTORS

A. The August 3, 2017 Press Release Disclosing for the First Time that Sales to Amazon of 40G Were Expected to Drop Significantly in Q3 2017

153. On August 3, 2017, AOI issued a press release after market hours announcing the Company's final financial results for the second quarter of 2017 ending June 30, 2017 (the "August 2017 Press Release") and held an earnings call (the "August 2017 Call"). In the August 2017 Press Release, Defendants were forced to reveal that "a large datacenter customer"—known to be Amazon—had decreased its demand for the 40G products going into the third quarter of 2017. Defendant Lin stated,

> We are pleased with our team's continued solid execution in the quarter, which marked our ninth consecutive quarter of generating record datacenter revenue. However, as we look into the third quarter, **we see softer than expected demand for our 40G solutions with one of our large customers** that will offset the sequential growth and increased demand we expect in 100G**. We believe AOI has a leading position in the advanced optics market and we continue to expand within our existing customer base as well as engage with new customers for 100G technologies and beyond**.

154. During the August 2017 Call, Defendant Murry echoed Lin's earlier statements:

> As we look into Q3, **we see softer than expected demand for our 40G solutions with one of our** large **datacenter customers that will offset the sequential growth and increased demand we expect to see in 100G.** This slowdown in 40G demand has been anticipated for some time, **but the decline in Q3 is greater than previously expected.** [. . .]

155. In fact, during Q3 2017, AOI's sales of 40G transceivers dropped from approximately $56.6 million to $27 million, while its sales of 100G transceivers increased only negligibly, increasing by only $1.8 million from Q2 2017. Thus, it was known to Defendants at the time of the August 2017 Call that, contrary to Defendants' representations, AOI was not

successfully transitioning from 40G to 100G; rather, it was losing ground in the *entirety* of its transceiver business.

156. When questioned by a Roth Capital Partners analyst during the August 2017 Call about how AOI could pre-report a "record performance" (as AOI stated in the August 2017 Press Release) only to report a substantial decline in 40G sales two weeks later, Defendant Murry claimed it was a "recent development:"

> Q: **ROTH CAPITAL PARTNERS:** "I'm curious as to how -- you seem to have been caught off-guard in terms of the decline on 40 gig. Is that something that transferred from your customer recently? Or is that something that was communicated in the middle of the quarter?"
>
> A: MURRY: **<u>It's a recent development</u>.** And again, it's not that we didn't expect 40 gig to decline with this customer or the other customers, we knew it would. **<u>It's just coming a little bit faster which, in the end, means a faster transition to 100 gig, which is not a bad thing. But obviously, in this particular quarter, it's happened faster than we expected. . . In this case, the information that we got about the 40 gig actually did happen post the pre-announcement</u>**, but that wouldn't necessarily change our thinking about whether or not to preannounce.

157. On the news of the dramatic decline in Amazon's demand for 40G transceivers, the Company's share price fell over 34%.

158. AOI, however, continued to make deceptive statements during August 2017 Call, stating that 100G demand with Amazon was on track: "**<u>We continue to expect to have 3 hyperscale customers, each represent more than 10% of our revenue for the full year 2017</u>**"; and that AOI had **<u>"meaningful 100 gig revenue with our largest customer as well as our other customers</u>**."

159. Defendants also continued to mislead investors about the purported "strength" of its faltering vertical integration manufacturing and its benefits that set AOI apart from competitors, stating in the August 2017 Press Release:

> AOI achieved another record performance driven by strong demand for our market-leading datacenter products and continued improvement in our manufacturing costs and capacity expansion," said Dr. Thompson Lin, Applied Optoelectronics, Inc. founder, president and CEO. "**Our record gross margin and earnings demonstrate the strength of our business model and deep manufacturing know-how. We believe our ability to leverage our vertical integration and proprietary manufacturing processes to drive greater efficiencies and shorten our production cycle times sets AOI apart from others in the industry**."

160. The above statements in paragraphs 158-59 were materially false and misleading when because:

i. AOI was taking shortcuts in the manufacturing and quality assurance of its 100G transceivers to increase manufacturing yields, lower costs, and maintain high gross margins, including, at the specific direction of Defendants, designating unqualified and overworked R&D engineers to perform the quality control function.

ii. CW2 stated that, as a result of AOI's lack of quality control, beginning in the first half of 2017 or earlier, AOI was sending its datacenter customers (which included Amazon) 100G transceivers containing 25G laser chips that had faulty chip coatings, and thus were prone to failure (reliability issues).

iii. Defendants received oral and written reports from weekly R&D meetings showing low manufacturing and assembly yields for its 25G chips and 100G transceivers of as low as 40%, well below the 90% that Defendants expected, demonstrating AOI was experiencing significant production shortfalls due to the manufacturing of defective laser ships and thus was unable to meet Amazon's demand requirements.

iv. Chien, who reported yields directly to defendant Lin by video call, phone call or in person every couple of weeks throughout the Class Period, would have informed Defendant Lin that yield in Taiwan through Q3 2017 was as low as 40% and well below the 90% AOI needed to be profitable.

v. Defendants knew from the SAP system and Amazon's contract requirements that Amazon had significantly reduced its demand for 100G transceivers and, thus, Amazon would not provide meaningful 100 gig revenue.

vi. According to CW2, as AOI was trying to transition from 40G to 100G, AOI lacked sufficient production capacity and was "desperate" to increase the Sugar Land facility's chip production capacity by creating a

new tooling or fixture to allow it to coat more chips at the same time and had not done so as of summer 2017.

vii. Defendants effectively admitted on September 28, 2018 AOI had sold to its major datacenter customers defective 100G transceivers containing 25G laser chips that were known to be prone to long-term failure.

161. Defendant Murry also dismissed the effects on its business of decreased Amazon demand or the MACOM-Fabrinet partnership and assured investors during the August 2017 Call that the "merchant model" was no threat to AOI's business or relationship with Amazon:

> So first of all, we don't believe that the MACOM-Fabrinet alliance is actually producing anything or is likely to produce any products or any meaningful quantities, certainly, in the next quarter or 2, probably longer than that. In addition to that, in the long term, and in the short term, we don't see any cost advantage to this model. AOI, as we mentioned, **<u>is currently very highly vertical integrated on the most expensive components, meaning the lasers. As we announced in the call, we also intend to produce other optical components that we currently don't produce internally, which will further enhance the extent of our vertical integration, and we think this gives us a significant cost even against the MACOM-Fabrinet business model or any of the other competitive business models that we're aware of</u>.**

162. The above statements were materially false and misleading when made because:

i. Amazon, AOI's largest customer at the time accounting for approximately 35% of AOI's revenues in 2017, had already began moving toward the merchant model and was ordering transceiver components from manufacturers including MACOM, which publicly disclosed this strategy as early as April 2017, and Fabrinet;

ii. Defendants knew or recklessly disregarded that, as Fabrinet and MACOM publicly disclosed as early as April or May 2017, Amazon was acquiring components for its transceivers elsewhere;

iii. On June 26, 2017, Amazon, Fabrinet, and MACOM entered into an alliance to build transceivers.

iv. Defendants knew from the SAP system and Amazon's contract requirements that Amazon had significantly reduced its demand for 100G transceivers early in the Class Period.

B. <u>The October 12, 2017 Press Release Reveals That Amazon's Declining Demand Was Not Limited to 40G Transceivers, As Previously Claimed, and Extended to Both 40G and 100G Transceivers</u>

163. On October 12, 2017, AOI issued a press release announcing preliminary financial results for the third quarter ended September 30, 2017 (the "October 2017 Press Release") reporting third quarter 2017 revenue in the range of $88 million to $89 million, falling far short of its previous revenue outlook of $107 million to $115 million. The October 2017 Press Release revealed for the first time that it was not just sales of 40G to Amazon that were impacted but, in fact, Amazon had decreased sales of both 40G and 100G transceivers:

> Our preliminary results for the third quarter fell short of prior estimates and were negatively impacted by ***lower than expected sales to one of our large datacenter customers***.

164. During an investor call that same day (the "October 2017 Call"), Defendant Murry revealed that revenue fell short of AOI's previous guidance for the third quarter of 2017 by approximately $18 million, or 20%, due specifically to lower demand from "a large datacenter customer." While AOI had partially disclosed that this customer, Amazon, would be reducing its purchases of 40G products during the August 3, 2017 earnings call, AOI was now forced to reveal that Amazon was purchasing very little of any type of the Company's products. Revenue from Amazon had in fact dropped from 47% of total revenue during the second quarter of 2017 to ***a mere 10%*** during the third quarter of 2017:

> ***We are disappointed with our third quarter performance. We indicated last quarter that we expected to see softer 40G demand. However, we saw lower demand overall from one of our large customers.*** Revenue from this customer in the quarter was approximately ***10% of total revenue compared with 47%*** last quarter.

165. Upon the news, AOI's stock price dropped 20%, from an October 12, 2017 close of $58.84 to a close of $47.01 on October 13, 2017.

166. Defendants, however, continued their charade, falsely claiming that the reason for Amazon's declining demand was unrelated to AOI and instead, was due to Amazon's slower transition from 40G to 100G transceivers:

> We continue to have ongoing discussions with this customer and based on our conversations, **we believe that the disruption in order flow is related to the ongoing transition from 40G to 100G and not specific to AOI.** We also do not expect the inventory stock in our VOI hub to be impaired because forecasts indicate that this inventory will be consumed over time.

167. Defendants further assured investors that AOI would not be saddled with excess inventory it could not sell because Amazon was going to increase its orders by purchasing any extra inventory and thus, inventory conditions would "normalize" in 2018:

> We continue to have ongoing discussions with this customer and based on those conversations, **we believe the disruption in order flow is related to the ongoing transition from 40G to 100G and not specific to AOI. We believe there was some inventory buildup during the transition and based on conversations with this customer, we believe that inventory conditions will normalize within the first half of next year**

168. During the Q3 2017 earnings call on November 7, 2017, one analyst directly questioned Defendants' explanations given for the 100G decrease by Amazon, to which Defendant Murry side-stepped responding, and added in follow-up that "we remain a major supplier to all of our major customers for their long-reach transceiver needs and intra-datacenter applications. And I'll kind of leave it at that as far as customer positioning":

> **Simon Matthew Leopold** - Raymond James & Associates, Inc., Research Division - Research Analyst
> Great. That's very helpful. Pleased to hear that. The other thing is -- and I'm assuming I've entered formulas correctly, so apology if I botch this. But I think the 100 gig business was down sequentially. So given that the primary explanation is a pause of 40 to 100 gig, I would have imagined you'd sell every piece of 100-gig gear. So maybe help us understand if: one, I did the math correctly; and two, if so, why would 100 gig be down in your third quarter.
>
> **Stefan J. Murry** - Applied Optoelectronics, Inc. - CFO and Chief Strategy Officer

> Well, I think we saw an overall decline -- as we mentioned in our prepared remarks, we saw an overall decline in business from one customer. So that included both 40 gig and 100 gig. On the other hand, the other customers that we had, were actually up for 100 gig, so that didn't quite balance out the overall decline from the one customer.

169. The above statements were materially false and misleading when made for the reasons stated in paragraphs 122, 148, and 150 above. For those reasons, Defendants knew Amazon was not going to increase its orders in 2018 and the decline in Amazon's demand was not the result of a slower transition from 40G to 100G. Rather, Amazon was going elsewhere to meet its transceiver needs. Thus, inventory conditions would not normalize because Amazon did not intend to resume purchasing AOI products, certainly not at the levels it had been before the Class Period.

170. Despite the serious problems with AOI's vertical integration and manufacturing process, Defendants continued to tout it as giving AOI a competitive advantage that allowed the Company to adapt quickly to shift from 40G to 100G transceivers. On November 14, 2017, AOI, represented by Defendant Murry, gave a presentation at the November 2017 Conference during which he stated:

> And so by having that flexible capacity support, for example, when we've seen rapid shifts from 40 gig to 100 gig or demand changes, **we can adapt to those demand changes relatively quickly compared to a company that had to rely on a long supply chain to be able to react to those changes. And that rapid response that we have also allows us to keep our customers very happy, right. I mean let's face it, they need product and they need it at the right time and the companies that can supply that and react to their changes in demand are generally ones that are going to be the most successful.**
>
> I mean we view our customer base as some of the, let's say, the customers that we have are among the most fast moving high-tech dynamic companies out there in the world and our ability to keep up with their pace of innovation is very important to them both in terms of keeping our manufacturing efficient, but also in terms of meeting their needs. **And so having that vertical integration, having a great deal of scale in-house allows us to keep our customers happy and maintain high gross margins in the process.**

171. The above statements were materially false and misleading when made for the reasons stated in paragraphs 122-23 above. Moreover, as a result of AOI's faulty manufacturing and quality control, defective transceivers and low yield, AOI was unable to adapt quickly to changes in customer needs or meet customer demand, causing at least Amazon, its largest customer, to reduce its sales from 48% in Q218 to 10% in Q318. Thus, AOI's largest customer was far from "happy" with the Company and AOI was not able to generate "a great deal of scale in-house" as represented.

C. The February 21, 2018 Press Release Reveals AOI Had Fallen Behind in Its Transition to 100G Due to "Customer-Specific" Issues

172. On February 21, 2018, AOI issued a press release announcing the Company's financial results for the fourth quarter and year-ended December 31, 2017 (the "February 2018 Press Release") and held an earnings call (the "February 2018 Call").

173. During the February 2018 Call, the staggering effect of Amazon's 100G purchasing withdrawal was exposed to investors with reported 100G sales dropping from 56% of data center revenues during the third quarter to 35% during the fourth quarter of 2017.

174. When questioned by analysts about the "skew . . . in favor of 40 gig," Defendant Murry admitted "[i]t's largely customer specific." Instead of pointing to the 40G to 100G transition as the reason behind shifting demand, when asked whether there was "any particular seasonality that drives the sequential weakness in the fourth quarter," Defendant Murry responded, "I can't really comment on the specific customers and their trends. But I think, it's not reasonable to expect that, in any given quarter, there can be a lot of things that affect a particular customer's purchasing partners, timing of orders, specific things that they're doing within their datacenters, what type of products they're deploying to mix."

175. On this news, AOI's shares fell $7.04 from a close of $34.55 on February 21, 2018 to a close of $27.51 on February 22, 2018.

D. The May 8, 2018 Press Release Reveals That AOI Continues to Struggle With the Transition to 100G

176. On May 8, 2018, AOI issued a press release announcing its first quarter 2018 financial results (the "May 2018 Press Release") reporting that, compared to Q1 2017, total revenue was down $31 million (to $65.2 million); GAAP gross margin was down 3.5% (to 39.6%); GAAP net income was down $17.7 million, or $0.89 per diluted share (to $2.1 million and $0.11); and non-GAAP net income was down $16.2 million, or $0.82 per diluted share (to $5.6 million and $0.28). On the same day, after market close, AOI held a conference call to discuss its first quarter financial results (the "May 2018 Call").

177. During the May 2018 Call, Defendant Murry continued to tout AOI's vertical integration model and boldly projected 100G transceiver sales to "more than double" in the second half of 2018, despite known manufacturing and product issues with the 25G laser chips and 100G transceivers, quality control problems, and low yield:

> We continue to maintain focus on diversifying our customer base and in the quarter had nine design wins, including five for our 100G products. **<u>We believe our cost leadership, scalable production capacity, in-house component supply and track record of innovation will allow us to be successful in this customer engagements.</u>**
>
> * * *
>
> On a more positive note, market trends were in line with our expectations. We couldn't believe in the first quarter we represent the pattern of a decline there in the demand we have seen over the past few quarters. There is an inventory condition has begun to normalize with our expectation [being] that [inventory levels] will return to more normal level later this year. **<u>We also currently expect 100G volumes to more than double in the second half of the year over the first half as we deliver on the committed orders we announced last quarter</u>.** We also met good profit in diversifying our customer base with nine design wins, including five for our 100G products and some of this design wins were with new customers.

178. The above statements were materially false and misleading when made for the reasons stated in paragraphs 122 and 150 above. Thus, AOI's 100G transceiver sales were going to ***decline***. Indeed, AOI's Q1 2018 100G sales were far ***lower*** than 100G sales in Q1, Q2, and Q3 2017.

179. On August 7, 2018, AOI issued a press release announcing the Company's second quarter 2018 financial results (the "August 2018 Press Release"). The August 2018 Press Release announced yet another quarter of disappointing results, with revenue declining from $117.4 million in the second quarter 2017 to $87.8 million in the second quarter 2018. The August 2018 Press Release stated that the company expected third quarter 2018 revenue to be in the range of $82 million to $92 million.

180. On the earnings call that occurred that day after market close (the "August 2018 Call"), Defendant Lin reiterated the importance of vertical integration to the Company's success, without disclosing the endemic problems with the laser chips manufactured in AOI's facilities. He stated,

> **We believe the new innovative technologies and techniques that we have developed position us well to build on our momentum. The cost advantage, time to market and flexibility afforded us through our vertical integration is a significant factor in our success and sets us apart from the competition.**

181. The above statements were materially false and misleading when made for the reasons set forth in paragraphs 122-23 above.

182. Also during the August 2018 Call, Loop Capital Markets analyst James Kisner specifically asked the Individual Defendants about the threat of the white box model (*i.e.*, the merchant model), to which Defendant Lin provided a boastful and misleading response:

> **Q: KISNER**: Okay. And also this has been a topic in the past about your customers, you're kind of in run going to the manufacturing partners and making their own white box transceivers in this quarter, obviously, I'm sure you saw that

the competitor, another player in this space talked about that becoming a more serious effort again after kind of head fate [*sic*] 18 months ago. I'm just wondering, if you give any updated thoughts on that, is that something that you're going to be worried about at all? Just any updated thoughts on kind of white box transceiver idea would be helpful. Thanks

A: LIN: And I can see something missing in this model is not radio [*sic* throughout]. Who is responsible for the year loss for the automation? For the manufacturing processing improvement? Who's responsible for the quality issue? That's not clear. I think there's still many issues in this model. <u>**I don't seeing it really work, all right? And I don't believe there comes a manufacturer like people in Taiwan. I don't believe they will be responsible for this kind of job, so who will be responsible**</u>? Will it be the end customer responsible for this? But I don't think really do they have the right people to take care of this issue because it's difficult to have manpower. It's not easy. <u>**And AOI is very quick, we always spent many years. So we know how to do automation. We know how to improve the process. This is very important.**</u> The year could be very bit different between company from 72% to 95%, there's a huge difference, so who is responsible? So there's many questions that need to be answered.

183. The above statements were materially false and misleading when made for the reasons set forth in paragraph 148 above.

E. The September 27 and 2018 Admissions That AOI Was Experiencing Issues With Its 25G Laser Chips, Forcing AOI to Suspend Shipments to Facebook

184. On September 27, 2018, analyst Loop Capital Markets downgraded its recommendation from Hold to Sell following Loop's "industry checks suggesting that: 1) AAOI is having product quality issues in 100G CWDM4 transceivers, and 2) the pricing environment for 100G data center optics remains very tough." Loop Capital Markets lowered its price target from $45 to $20.

185. On the date of Loop Capital Market's announcement, AOI's share price fell from a close of $31.34 on September 26, 2018 to $28.36 on September 27, 2018, a drop of 9.5%, on heavy trading volume.

186. The following day, on the morning of September 28, 2018 AOI issued a press release (filed on Form 8-K) in which it stated that the Company had lowered 3Q 2018 revenue guidance from between $82 million and $92 million to between $55 million and $58 million.

187. In the same press release, Defendant Lin admitted that

> During the third quarter, ***we identified an issue with a small percentage of 25G lasers*** within a specific customer environment. Consistent with AOI's commitment to supreme product quality and customer support, ***we mutually agreed with the customer to temporarily suspend shipments of certain transceivers utilizing these lasers*** while we worked to gain a deeper understanding of the scope of the issue and implement a solution. We have since determined that less than one percent of these lasers were subject to this issue, we have enacted a solution and with the agreement of the customer, resumed shipments.

188. Following the analyst's revelation and Defendants' admission, AOI's share price fell from a close of $28.36 on September 27, 2018 to $24.66 on September 28, 2018, a drop of 13%, on heavy trading volume. By Monday, October 1, the share price had fallen to $24.00. The share price continued to plummet until it reached $23.36 on October 2, 2018, a drop of 17.6% from its September 27, 2018 close.

189. Other analysts were quick to investigate the cause of the significant shortfall in projected earnings. An analyst from Cowen and Company cast a skeptical eye on AOI's explanation:

> Taking AAOI's 9/28/18 press release at face value, the issue appears to be transitory in nature--isolated to one customer and already to have been addressed. That said, to be clear, ***AAOI's assertions notwithstanding, its press release raises some unanswered questions***. . . Admittedly, we are giving AAOI the benefit of the doubt. ***As for the unanswered questions, in short, was the issue specific to a dedicated production line for the customer in question, which, based on the size of the expected shortfall—almost $40M—we believe to be [Facebook]? We assume the answer is yes[.] Even assuming AAOI has a dedicated 25G laser and 100G CWDM4 module production line for FB, a related question is what, if anything, is different in AAOI's production line for 25G lasers and 100G CWDM4 modules for FB from its 25G laser and 100G CWDM4 production lines for other customers? [O]therwise, we do not understand how AAOI can assert that it is an issue isolated to a single customer. 25G lasers go into 100G CWDM4***

> ***modules, which are used, to varying extent, by other AAOI customers beyond just FB. And if not—and perhaps even if so—the thought arises that AMZN, MSFT and other existing and prospective customers would at a minimum be concerned as to prospective issues with their AAOI sourced transceivers.***

190. With respect to Cowen's question as to why there would be defects only in the laser chips were deployed across many products—and not just a small percentage of those shipped to Facebook in 3Q 2018—Cowen was right to be concerned. Indeed, as Defendant Murry stated in the August 3, 2017 earnings call, the hundreds of thousands or millions of laser chips being manufactured by AOI "***will continue to be leveraged across our product portfolio***."

191. The Cowen analyst also stated that, based on the 3Q18 revenue shortfall, it had lowered not only the 3Q18 forecast, but also its "4Q18 and CY19-20 forecasts entirely driven in our FB and 100G revenue forecasts." Furthermore, the Cowen analyst stated,

> **<u>We also have reduced our 3Q18 gross and operating margin forecasts given AAOI's fully vertically integrated manufacturing model and attending likely adverse impact of the revenue shortfall</u>.** We have decreased our total revenue and PF (ex-ESC) EPS forecasts as follows: CY18 by ($47M)/($0.78) to $300M/$1.75; CY19 by ($11M)/($0.10) to $405M/$3.53; and CY20 by ($13M)/($0.12) to $449M/$4.03.Our decreased Data Center transceiver revenue forecast drives all of our decreased total revenue forecast.

192. Also on September 28, 2018, Loop Capital Markets issued a follow-up report, entitled "We Don't Think They Are Out of the Woods Yet; Maintain Sell Rating," in which he stated that AOI's disclosure of laser chip problems was "[c]onsistent with our downgrade report yesterday." AOI's disclosure did not change Loop's "sell" rating.

> **Negative Pre-Announcement**. This morning, AAOI negatively pre-announced 3Q results. Consistent with our downgrade report yesterday (link here), the company stated that a laser product quality issue led to a delay of 3Q shipments. The company now expects 3Q revenue of $55-$58 million versus prior guidance of $82-$92 million. The company stated that the issue only affected a small percentage of 25G lasers in a specific customer environment and that the company has enacted a solution and resumed shipments.

> **We Remain Cautious; Maintaining Sell Rating**. While AAOI is indicating that this issue is largely resolved, the company didn't provide any key financial details on 3Q results such as gross margin, nor did the company provide an outlook for 4Q. At this point we're wondering if the company might have to make pricing concessions to make up for the issue, and it's also possible that other customers could change their purchasing behavior as result of this development. We believe investors should exercise caution. We're maintaining our Sell rating.

193. The same day, Northland Capital Markets noted that, among the myriad "risks in the 100G Cloud Datacom market" it had identified, "25G laser product quality at AAOI was not among them." Northland stated that "given the highly competitive environment at FB and elsewhere AAOI is in danger of share loss to INTC and Innolight." Northland further stressed that the quality control problems at AOI could strengthen the competitive position of other market participants, including MACOM:

> ***Given that internal control over the laser/manufacturing processes has been one of the main selling points for vertical integration, we believe AAOI[']s continued struggles make the emerging outsource/whitebox model ramping at MTSI [MACOM] in 2H18 more attractive to Cloud providers.*** *We* also believe these issues put a premium of 25G datacom laser quality with OCLR [Oclaro Inc.] at the top of the pack from a merchant standpoint and one of several reasons to own LITE [Lumentum Holdings Inc.] at current levels heading out of the show. Finally, we see potential benefits for FNSR [Finisar Corporation] as the industry's largest datacom optics supplier despite no exposure to date at FB. Finally, INTC noted at the ECOC show a 100G datacom transceiver run rate that has eclipsed 1MM units, adding additional competitive intensity to the mix at FB.

194. On September 28, 2018, an analyst at Piper Jaffray reiterated its "neutral" rating for AOI, based on the analyst's belief that the laser chip issue "was a company specific quality problem." The analyst stated [his] belief that

> Applied has built a solid business with industry leading margins supplying quality optical transceivers to customers like Facebook and Amazon, but ***we have recently been neutral on the stock given the high degree of customer concentration risk and these results exemplify these concerns***.

195. Both Cowen and Northland Capital Markets stated on September 28, 2018 their view that the quality issue with 25G lasers affected Facebook based on the size of the shortfall in

Q3 earnings against the Company's earlier forecast. A Piper Jaffray analyst stated that day his belief that the customer was either Facebook or Amazon.

196. The details concerning the extent of the failure of AOI's vertically integrated manufacturing platform, and its impact on AOI's biggest customer relationships, have continued to emerge.

VII. POST-CLASS PERIOD EVENTS

197. On November 1, 2018, Jun Zhang of Rosenblatt Securities reported that AOI's laser chip issue at Facebook was ongoing and, on that basis, slashed revenue projections for Q4 2018 from $96 million to $30 million due to the expected continuing loss of Facebook sales.

198. On November 7, 2018, Defendants Released the November 2018 Press Release and held the November 2018 Call concerning Q3 2018 earnings. On the call, Defendant Lin confirmed the Company's belated September 28, 2018 admission that AOI had experienced

> ***[A]n issue we identified with a small percentage of 25G lasers, which led to a temporary delay in 1 of digital receiver shipments to a datacenter customer***. As we work to troubleshoot the issues, we enact a solution quickly and with agreement of data customer, resumed shipments. ***The delay, however, resulted in softer-than-expected datacenter revenue of $39 million.*** We continue to have active engagement with this customer and believe we have a solid relationship.

199. Defendant Murry admitted that the "issue" that AOI had to "***troubleshoot***" for the datacenter customer (which is Facebook) was a "***quality issue***." This "quality issue" prevented AOI from "complet[ing] the manufacturing process" for certain goods during the quarter. He also alerted investors that AOI would suffer decreased production capacity and increased costs in Q4 due to

> ***[A]dditional product testing sets that we have implemented in order to further reassure our customer base that we have eliminated any potentially troublesome laser devices from our inventory***, including work in process. Most of these additional testing steps are temporary measures to screen existing inventory. In

addition to the reduced production capacity, these costs will also temporarily increase our cost of goods sold and thus negatively impact our gross margin in Q4.

200. Defendant Murry sought to downplay any potential problem with AOI's customer relationships by stating that he believed the quality issued had not "affected our business with other customers," that AOI "continue[s] to have ongoing discussions and active engagement" with Facebook and "[w]e currently expect demand from this customer [Facebook] in Q4 to meet our earlier expectations." However, when pressed about the health of the Facebook customer relationship, Defendant Murry did not emphasize the soundness of the products sent to its biggest customer, but rather conveyed that "what's really important for us is continuing to diversify our customer base, right?"

201. Moreover, Defendants admitted (as analysts ascertained from the September 28, 2018 admissions) that the undisclosed (but known to Defendants) "quality issue" affecting 25G laser chips in transceivers sent to data center customers had impacted nearly every measure of the Company's financial health.

- Revenue of $56.4 million was ***over $24 million below AOI's originally forecasted Q3 outlook*** due to the suspended shipments.
- ***Gross margin declined from 40.4% to 34%,*** "primarily due to capacity underutilization while we worked to resolve the inventory issue we experienced this quarter."
- AOI had been forced to take "***about $1.5 million of inventory write-downs related to the quality issue.***"
- ***Operating expenses increased to 40.4% of revenue compared to 23.7% of revenue*** in the prior quarter "mostly due to higher R&D expense incurred to troubleshoot and resolve the issue we experienced in the quarter."
- "[I]t's reasonable to believe that ***some of the business [lost by AOI] went to a competitor in the quarter***."

202. Although Defendants took pains to treat the "quality problem" as a customer- and product-specific and temporally isolated incident, the ***prospective*** financial impact on the

Company belied those reassurances. As Defendant Murry stated,

- AOI projected a fourth-quarter revenue outlook of between $56 million and $63 million, which, if achieved, would result in total 2018 revenues of approximately $265 million, ***a 31% drop from 2017 revenues*** of $382.3 million.

- AOI would probably ***fall short of projected 2018 Facebook revenue by $35 million***, and, as to AOI's future relationship with Facebook following Q4 2018, all Defendant Murry could say was that "***we're still working with them on the time periods [after] that***."

- More inventory write downs were likely if testing results were negative: "***I wouldn't expect huge inventory adjustments in the fourth quarter, but a lot of that depends on the testing that we have ongoing at this point.***"

- The "additional testing steps" would negatively affect gross margin in Q4, but Defendant Murry stated only that "we think that we can get back to that 40% gross margin target sometime in the future."

- Production capacity in Q4 was expected to continue to lag demand.

VIII. ADDITIONAL FACTS PROBATIVE OF SCIENTER

A. Defendant' Belatedly Admitted That the Decline in AOI's Sales to Amazon and Facebook Were the Result of AOI's Defective 25G Laser Chips Causing Low Yields, Production Shortfalls, and Latent Defects in AOI's 100G Transceivers

203. On September 28, 2018, Defendants finally admitted (after being forced to do so by a Loop Capital analyst report) that the real reason for AOI's decaying sales was that AOI's 25G laser ships that make up its 100G transceivers that it shopped to its premier customers, Amazon and Facebook, were defective. Thus, it was not a slow transition from 40G to 100G transceivers or changes in the way a key customer architect their network that caused the significant drop in sales, as Defendants were leading investors to believe.

204. These manufacturing and chip failures were so grave that AOI was forced to suspend shipments to Facebook in Q3 2018, indefinitely, and lost the bulk of its revenue from Amazon and Facebook by the end of the Class Period. This admission demonstrates that the laser chip manufacturing problems affecting AOI in 2017 and 2018 (as described by CW2 and CW3)

continued to plague the Company throughout the Class Period. Moreover, this admission came only a few weeks after AOI falsely and/or misleadingly informed investors on August 8, 2018 in its 2Q 2018 10-Q that AOI sales were sagging "*due to changes in the way [a key customer] architect[s] their network*" and referring to the risk that "manufacturing problems" that could cause AOI "to lose sales and damage our customer relationships," without disclosing that ***the risk had already materialized***.

B. Defendants Were Aware of the Production Issues Plaguing the 100G Transceivers Through Weekly R&D Meetings Discussing "Yields," Reliability Issues, and Other Key Metrics

205. According to CW2, the Individual Defendants and other senior executives at AOI were constantly monitoring all aspects of the Company's operations. Many of the managers at AOI, CW2 stated, are "yes men" and "the CEO [Lin] rules with fear," and "would react pretty big to even the littlest problems," such that even "small problem would be blown out of proportion."

206. Defendant Lin was fully aware of any production issues with the optical transceivers, and the component laser chips for its 100G products because his key deputies attended (and reported back to Lin concerning) the weekly Wednesday R&D meetings held at 4:30 pm Central Time. According to CW2, the main topics of discussion at these weekly meetings throughout the Class Period always included production capacity and shortfalls and low yield for the 100G transceiver About 20 people attended these meetings, including various product managers, engineers, senior engineers. Senior participants included VP of R&D Jun Zheng, who ran the meeting; Huanlin Zhang, the senior R&D manager responsible for laser chips; I Lung (Morris) Ho, the Senior R&D Engineer in charge of packaging; Fred (Hung-Lun) Chang, the SVP of the Optical Component Business Unit; and , and Chan Chih (David) Chen, a special assistant to Defendant Lin and Assistant VP, Sales & Marketing, who was also in charge of corporate quality

control and quality assurance. At the time of these meetings, all participants reported to Chen and, in addition, according to CW2, Chen provided Defendant Lin with updates after the weekly Wednesday R&D meetings.

207. Additionally, CW2 stated that Defendant Lin received monthly status reports from all R&D managers about transceiver manufacturing issues during the Class Period, including with respect to AOI's struggle to increase laser chip manufacturing yields

208. Furthermore, at the Wednesday meetings in Texas, the managers (or their lead engineers) for chips, packaging, and transceivers would each make a PowerPoint presentation. Each manager uploaded the PowerPoint presentations they gave at the meetings into a "projects folder" on the shared network drive, which was accessible by the Individual Defendants and anyone in the R&D department. An Excel file containing notes on what was discussed at the meetings was prepared for each meeting and placed on the same shared network drive.

209. All R&D managers and project managers from the Texas facility also conferenced with the teams in Taiwan, and likely the People's Republic of China, once a week as well. At these meetings, according to CW2, there were discussions about production capacity, yields for the optical modules and transceivers, production issues and shortfalls.

210. Furthermore, Jun Zheng, the VP of the R&D Department in Texas, helped prepare Defendants Lin and Murry for earnings calls by providing them with information presented during these meetings. Thus, Defendants were aware of the manufacturing problems that were having a severe negative effect on AOI's 100G transceiver yields.

C. Defendants Were Aware of Amazon and Facebook's Declining Demand Through Projections Reported in the SAP System

211. The Individual Defendants had access to SAP, the Company-wide enterprise resource planning program that includes customer relationship management tools that track

customer forecasts and purchases. As described above, Company salespeople entered into the SAP system the annual, periodic, and updated forecasts provided by AOI's main customers, which informed AOI of the type and volume of transceivers the customers would require in the future. By reviewing this data and reports generated from this data, the Individual Defendants knew or recklessly disregarded the fact that the forecasts and actual purchases made by Amazon for 100G transceivers fell far short of what Defendants had been priming investors to expect in the next quarter.

D. <u>AOI's Data Center Business Is Its Most Important</u>

212. Defendants have repeatedly underscored the data center market as AOI's most important and the primary driver of the Company's revenues:

- "Our revenue growth in the quarter was driven by continued strong demand for our market-leading datacenter products…." Defendant Lin, February 2017 Call.
- "Demand for our market-leading datacenter products continued to drive our exciting result this quarter." Defendant Lin, May 2017 Call.
- "Total revenue for the first quarter grew 91% year-over-year to reach another record $96.2 million. This was primarily driven by continued demand for our market-leading datacenter products." Defendant Murry, May 2017 Call.
- "Our results were driven by strong demand for our datacenter products…." Defendant Lin, August 2017 Call.

213. The Company and the Individual Defendants also specifically recognized Amazon's major contribution and importance to their data center market and revenues, breaking out the percentage of revenue attributed to Amazon each quarter and stating, for example: "So, when we look at our heavy concentration to Amazon, that certainly goes a long way towards

explaining why we're so heavily concentrated there. They are just much larger than most of the other data center operators."

214. Defendants stated numerous times during the Class Period that they had visibility into its customers' demand, including, for example, in the 2016 Form 10-K:

> Our sales model focuses on direct engagement and close coordination with our customers to determine product design, qualifications, performance and price. . . . Throughout our sales cycle, we work closely with our customers to qualify our products into their product lines. As a result, we strive to build strategic and long-lasting customer relationships and deliver products that are customized to our customers' requirements.

215. Furthermore, during the Class Period, the Individual Defendants were AOI's most senior executives with direct control and supervision over its business, operations, and public statements. By virtue of their executive positions, the Individual Defendants knew non-public material facts concerning AOI's data center customers, which was the Company's core business.

E. Motive to Conceal Product Defects

216. Defendants were motivated to deceive the public about the endemic defects in 25G laser chips and low yields for 100G transceivers because they needed to retain their three biggest customers—Amazon, Facebook, and Microsoft—and to attract new ones (including a Chinese datacenter and non-datacenter customers). But they knew that, inevitably, the existing customers' transceivers would fail (and did fail) and that those customers would consequently look elsewhere for a better supply of more reliable 100G transceivers.

217. Indeed, after the Company's sales to Amazon plummeted beginning in Q2 2017, Defendants told investors to put their hopes in large volumes of future sales from Facebook. But, as Defendants knew from the terms of the Supply Agreement and Master Purchase Agreement with Facebook, the social media giant imposed onerous terms on its suppliers, ones demanding reliable delivery of flawless products—which, as Defendants learned from their experience with

Amazon, AOI was unable to provide. Defendants were thus highly motivated to deceive the public about problems with its supposedly distinctive vertically integrated model, so that customers would not forego AOI's products and look elsewhere—including to merchant model vendors—to obtain transceivers, and thereby accelerate the decline in AOI's fortunes that Defendants, throughout the Class Period, had been so desperate to hide.

IX. LOSS CAUSATION

218. During the Class Period, as detailed herein, Defendants engaged in a scheme to deceive the market and a course of conduct that artificially inflated the Company's stock price during the Class Period, and operated as a fraud or deceit on acquirers of the Company's securities.

219. As detailed above, when the truth about AOI's manufacturing problems and loss of customer demand from Amazon and then Facebook was revealed, the value of the Company's securities declined precipitously as the prior artificial inflation no longer propped up its stock price. The decline in AOI's share price was a direct result of the nature and extent of Defendants' fraud finally being revealed to investors and the market. The timing and magnitude of the securities' price decline negates any inference that the loss suffered by Plaintiff and other members of the Class was caused by changed market conditions, macroeconomic or industry factors or Company-specific facts unrelated to the Defendants' fraudulent conduct. The economic loss, i.e., damages, suffered by Plaintiff and other Class members was a direct result of Defendants' fraudulent scheme to artificially inflate the Company's stock price and the subsequent significant decline in the value of the Company's share price when Defendants' prior misrepresentations and other fraudulent conduct was revealed.

220. The artificial inflation created by Defendants' misrepresentations and omissions was removed through a series of partial corrective disclosures by Defendants starting with their

announcement on August 3, 2017 that one of their largest data center customers—Amazon—would be decreasing its demand for the Company's 40 GG products. The market was surprised by this disclosure and reacted swiftly. AOI's stock price declined 34% from a close of $97.99 per share on August 3, 2017, to close at $64.60 per share on August 4, 2017, on heavier than usual trading volume of more than 17 million shares.

221. This disclosure would be the first in a series of many disclosures correcting Defendants' prior misrepresentations and omissions concerning the Company's manufacturing capacity, manufacturing process, customer demand, and known manufacturing problems with products purchased and delivered to AOI's two largest customers—Amazon and Facebook.

222. On October 12, 2017, the falsity of Defendants' statements and omissions further materialized with the Company's preliminary financial results for the third quarter of 2017 ending September 30, 2017, when AOI revealed that Amazon's demand had dropped to a mere 10% of the Company's revenues, that Amazon's demand for both 40G and 100G products had decreased, and that despite previous claims otherwise, the vendor warehouse model did not allow AOI to accurately predict revenues from the customer. Following this news, AOI's stock price dropped from a closing price of $58.84 on October 12, 2017, to a closing price of $47.01 on October 13, 2017, over 20%, on heavier than normal trading volume of almost 8.7 million shares.

223. On February 21, 2018, Defendants' disclosed that its transition from 40G to 100G had been hampered due to "customer-specific" issues, with 100G data center revenues decreasing from 56% of those revenues during the third quarter of 2017 to 35% during the fourth quarter of 2017. On this news, AOI's stock price fell over 20% from a closing price of $34.55 on February 21, 2018 to a closing price of $27.51 on February 22, 2018.

224. On September 27, 2018, analyst Loop Capital Markets reported that "industry checks suggested that: 1) AAOI is having product quality issues in 100G CWDM4 transceivers, and 2) the pricing environment for 100g data center optics remains very tough" further revealing that AOI was experiencing undisclosed product quality issues that would devastate its expected revenue and deteriorate its relationship with another one of its large customers.

225. The next day, on September 28, 2018 AOI issued a press release (filed on Form 8-K) in which the Company admitted that AOI had issues with its 25G laser ships and, accordingly, Facebook had suspended shipments. AOI also lowered 3Q 2018 revenue from $82 million and $92 million to between $55 million and $58 million. All told, from September 26, 2018 to October 1, 2018 the value of AOI's stock plummeted from $31.34 to $24.00—***a drop of over 23%***—on heavy trading volume.

226. At all relevant times, Defendants' materially false and misleading statements or omissions alleged herein directly or proximately caused the damages suffered by the Plaintiff and other Class members. Those statements were materially false and misleading through their failure to disclose a true and accurate picture of AOI's manufacturing capacity, existing problems with its manufacturing, known or inevitable product failures, and corresponding reductions in customer demand, as alleged herein. Throughout the Class Period, Defendants publicly issued materially false and misleading statements and omitted material facts necessary to make Defendants' statements not false or misleading, causing AOI's securities to be artificially inflated. Plaintiff and other Class members purchased AOI's securities at those artificially inflated prices, causing them to suffer the damages complained of herein.

X. PRESUMPTION OF RELIANCE; FRAUD-ON-THE-MARKET

227. At all relevant times, the market for Applied Optoelectronics Securities was an efficient market for the following reasons, among others:

(a) AOI Securities met the requirements for listing, and were listed and actively traded on the NASDAQ, a highly efficient market;

(b) During the Class Period, AOI Securities were actively traded, demonstrating a strong presumption of an efficient market;

(c) As a regulated issuer, AOI filed with the SEC periodic public reports during the Class Period;

(d) AOI regularly communicated with public investors via established market communication mechanisms;

(e) AOI was followed by securities analysts employed by major brokerage firms who wrote reports that were distributed to the sales force and certain customers of brokerage firms during the Class Period. Each of these reports was publicly available and entered the public marketplace; and

(f) Unexpected material news about AOI was rapidly reflected in and incorporated into the Company's stock price during the Class Period.

228. As a result of the foregoing, the market for AOI Securities promptly digested current information regarding AOI from all publicly available sources and reflected such information in AOI's stock price. Under these circumstances, all purchasers of Applied Optoelectronics Securities during the Class Period suffered similar injury through their purchase of AOI's Securities at artificially inflated prices, and a presumption of reliance applies.

229. Alternatively, reliance need not be proven in this action because the action involves omissions and deficient disclosures. Positive proof of reliance is not a prerequisite to recovery pursuant to ruling of the United States Supreme Court in *Affiliated Ute Citizens of Utah v. United States*, 406 U.S. 128 (1972). All that is necessary is that the facts withheld be material in the sense that a reasonable investor might have considered the omitted information important in deciding whether to buy or sell the subject security. Here, the facts withheld are material because an investor would have considered the Company's financials and adequacy of internal controls over financial reporting when deciding whether to purchase and/or sell stock in AOI.

XI. INAPPLICABILITY OF THE STATUTORY SAFE HARBOR AND BESPEAKS CAUTION DOCTRINE

230. The statutory safe harbor provided for forward-looking statements under certain circumstances does not apply to any of the false and misleading statements alleged in this Complaint. The statements alleged to be false and misleading herein all relate to then-existing facts and conditions.

231. To the extent certain of the statements alleged to be misleading or inaccurate may be characterized as forward looking, they were not identified as "forward-looking statements" when made and there were no meaningful cautionary language identifying important factors that could cause actual results to differ materially from those in the purportedly forward-looking statements.

232. To the extent certain that the statutory safe harbor is determined to apply to any forward-looking statements pleaded herein, Defendants are also liable for those false or misleading "forward-looking statements" pleaded because, at the time each "forward-looking statement" was made, the speaker had actual knowledge that the "forward-looking statement" was false or misleading and/or the "forward-looking statement" was authorized and/or approved by an

executive officer of AOI who knew that the "forward-looking statement" was false when made. Alternatively, none of the historic or present-tense statements made by the defendants were assumptions underlying or relating to any plan, projection, or statement of future economic performance, as they were not stated to be such assumptions underlying or relating to any projection or statement of future economic performance when made, nor were any of the projections or forecasts made by the defendants expressly related to or stated to be dependent on those historic or present-tense statements when made.

XII. CLASS ACTION ALLEGATIONS

233. Plaintiff brings this action as a class action pursuant to Federal Rules of Civil Procedure 23(a) and (b)(3) on behalf of a Class, consisting of all individuals and entities who purchased or otherwise acquired Applied Optoelectronics Securities on the public market during the Class Period, and were damaged, excluding the Company and its subsidiaries and affiliates, any their respective officers and directors at all relevant times, the Individual Defendants and each of their immediate family members, legal representatives, heirs, successors or assigns, and any entity in which any of the Defendants have or had a controlling interest (the "Class").

234. The members of the Class are so numerous that joinder of all members is impracticable. Throughout the Class Period, AOI securities were actively traded on the NASDAQ. While the exact number of Class members is unknown to Plaintiff at this time and can be ascertained only through appropriate discovery, Plaintiff believes that there are hundreds or thousands of members in the proposed Class. Record owners and other members of the Class may be identified from records maintained by AOI or its transfer agent and may be notified of the pendency of this action by mail, using the form of notice similar to that customarily used in securities class actions. Upon information and belief, these shares are held by thousands if not

millions of individuals located geographically throughout the country and possibly the world. Joinder would be highly impracticable.

235. Plaintiff's claims are typical of the claims of the members of the Class as all members of the Class are similarly affected by the Defendants' respective wrongful conduct in violation of the federal laws complained of herein.

236. Plaintiff will fairly and adequately protect the interests of the members of the Class and has retained counsel competent and experienced in class and securities litigation. Plaintiff has no interests antagonistic to or in conflict with those of the Class.

237. Common questions of law and fact exist as to all members of the Class and predominate over any questions solely affecting individual members of the Class. Among the questions of law and fact common to the Class are:

(a) whether the federal securities laws were violated by the defendants' respective acts as alleged herein;

(b) whether statements made by the Defendants to the investing public during the Class Period misrepresented material facts, or omitted material facts necessary in order to make the statements made, in light of the circumstances under which they were made, not misleading;

(c) whether the defendants acted knowingly or with deliberate recklessness in issuing false and misleading statements and/or omissions;

(d) whether the price of AOI securities during the Class Period was artificially inflated because of the defendants' conduct complained of herein; and

(e) whether the members of the Class have sustained damages and, if so, what is the proper measure of damages.

238. A class action is superior to all other available methods for the fair and efficient adjudication of this controversy since joinder of all members is impracticable. Furthermore, as the damages suffered by individual Class members may be relatively small, the expense and burden of individual litigation make it impossible for members of the Class to individually redress the wrongs done to them. There will be no difficulty in the management of this action as a class action.

XIII. CLAIMS FOR RELIEF

COUNT I
Violation of Section 10(b) and Rule 10b-5 Against All Defendants

239. Plaintiff repeats and realleges each and every allegation contained above as if fully set forth herein.

240. During the Class Period, Defendants carried out a plan, scheme and course of conduct which was intended to and, throughout the Class Period, did: (1) deceive the investing public, including Plaintiff and other Class members, as alleged herein; and (2) cause Plaintiff and other members of the Class to purchase Applied Optoelectronics Securities at artificially inflated prices. In furtherance of this unlawful scheme, plan and course of conduct, each of the Defendants took the actions set forth herein.

241. Defendants: (a) employed devices, schemes, and artifices to defraud; (b) made untrue statements of material fact and/or omitted to state material facts necessary to make the statements not misleading; and (c) engaged in acts, practices, and a course of business that operated as a fraud and deceit upon the purchasers of the Company's Securities in an effort to maintain artificially high market prices for AOI securities in violation of Section 10(b) of the Exchange Act and Rule 10b-5 promulgated thereunder. All Defendants are sued either as primary participants in the wrongful and illegal conduct charged herein or as controlling persons as alleged below.

242. Defendants, individually and in concert, directly and indirectly, by the use, means or instrumentalities of interstate commerce and/or of the mails, engaged and participated in a continuous course of conduct to conceal adverse material information about the business, operations and future prospects of AOI as specified herein.

243. These Defendants employed devices, schemes, and artifices to defraud while in possession of material adverse non-public information, and engaged in acts, practices, and a course of conduct as alleged herein in an effort to assure investors of AOI's value and performance and continued substantial growth, which included the making of, or participation in the making of, untrue statements of material facts and omitting to state material facts necessary in order to make the statements made about AOI and its business operations and future prospects in the light of the circumstances under which they were made, not misleading, as set forth more particularly herein, and engaged in transactions, practices and a course of business that operated as a fraud and deceit upon the purchasers of Applied Optoelectronics Securities during the Class Period.

244. Individual Defendants' primary liability, and controlling person liability, arises from the following facts: (1) Individual Defendants were high-level executives, directors, and/or agents at the Company during the Class Period and members of the Company's management team or had control thereof; (2) each Individual Defendant, by virtue of his responsibilities and activities as a senior officer and/or director of the Company, was privy to and participated in the creation, development and reporting of the Company's financial condition; (3) each Individual Defendant enjoyed significant personal contact and familiarity with the other Individual Defendant and was advised of and had access to other members of the Company's management team, internal reports and other data and information about the Company's finances, operations, and sales at all relevant times; and (4) each Individual Defendant was aware of the Company's dissemination of

information to the investing public which they knew or recklessly disregarded was materially false and misleading.

245. Defendants had actual knowledge of the misrepresentations and omissions of material facts set forth herein, or acted with reckless disregard for the truth in that they failed to ascertain and to disclose such facts, even though such facts were available to them. Such Defendants' material misrepresentations and/or omissions were done knowingly or recklessly and for the purpose and effect of concealing AOI's operating condition and future business prospects from the investing public and supporting the artificially inflated price of its securities. As demonstrated by Defendants' overstatements and misstatements of the Company's financial condition throughout the Class Period, Defendants, if they did not have actual knowledge of the misrepresentations and omissions alleged, were reckless in failing to obtain such knowledge by deliberately refraining from taking those steps necessary to discover whether those statements were false or misleading.

246. As a result of the dissemination of the materially false and misleading information and failure to disclose material facts, as set forth above, the market price of AOI's securities was artificially inflated during the Class Period. In ignorance of the fact that market prices of AOI's publicly-traded securities were artificially inflated, and relying directly or indirectly on the false and misleading statements made by Defendants, or upon the integrity of the market in which the Securities trades, and/or on the absence of material adverse information that was known to or recklessly disregarded by Defendants but not disclosed in public statements by Defendants during the Class Period, Plaintiff and the other members of the Class acquired Applied Optoelectronics' Securities during the Class Period at artificially high prices and were or will be damaged thereby.

247. At the time of said misrepresentations and omissions, Plaintiff and other members of the Class were ignorant of their falsity, and believed them to be true. Had Plaintiff and the other members of the Class and the marketplace known the truth regarding AOI's financial results, which was not disclosed by Defendants, Plaintiff and other members of the Class would not have purchased or otherwise acquired their AOI's securities, or, if they had acquired such securities during the Class Period, they would not have done so at the artificially inflated prices that they paid.

248. By virtue of the foregoing, Defendants have violated Section 10(b) of the Exchange Act, and Rule 10b-5 promulgated thereunder.

249. As a direct and proximate result of Defendants' wrongful conduct, Plaintiff and the other members of the Class suffered damages in connection with their respective purchases and sales of the Company's Securities during the Class Period.

250. This action was filed within two years of discovery of the fraud and within five years of each plaintiff's purchases of Securities giving rise to the cause of action.

COUNT II

The Individual Defendants Violated Section 20(a) of the Exchange Act

251. Plaintiff repeats and realleges each and every allegation contained above as if fully set forth herein.

252. The Individual Defendants acted as controlling persons of AOI within the meaning of Section 20(a) of the Exchange Act as alleged herein. By virtue of their high-level positions, agency, ownership and contractual rights, and participation in and/or awareness of the Company's operations and/or intimate knowledge of the false financial statements filed by the Company with the SEC and disseminated to the investing public, the Individual Defendants had the power to influence and control, and did influence and control, directly or indirectly, the decision-making of

the Company, including the content and dissemination of the various statements that Plaintiff contends are false and misleading. The Individual Defendants provided with or had unlimited access to copies of the Company's reports, press releases, public filings and other statements alleged by Plaintiff to have been misleading prior to and/or shortly after these statements were issued and had the ability to prevent the issuance of the statements or to cause the statements to be corrected.

253. In particular, each of these Defendants had direct and supervisory involvement in the day-to-day operations of the Company and, therefore, is presumed to have had the power to control or influence the particular transactions giving rise to the securities violations as alleged herein, and exercised the same.

254. As set forth above, AOI, the Individual Defendants each violated Section 10(b), and Rule 10b-5 promulgated thereunder, by their acts and omissions as alleged in this Complaint.

255. By virtue of their positions as controlling persons, the Individual Defendants are liable pursuant to Section 20(a) of the Exchange Act. As a direct and proximate result of Defendants' wrongful conduct, Plaintiff and other members of the Class suffered damages in connection with their purchases of the Company's Securities during the Class Period.

256. This action was filed within two years of discovery of the fraud and within five years of each Plaintiff's purchases of Securities giving rise to the cause of action.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff prays for relief and judgment as follows:

(a) Determining that this action is a proper class action, certifying Plaintiff as class representative under Federal Rule of Civil Procedure 23 and Plaintiff's counsel as class counsel;

(b) Awarding compensatory damages in favor of Plaintiff and the other members of the Class against all Defendants, jointly and severally, for all damages sustained as a result of the defendants' wrongdoing, in an amount to be proven at trial, including interest thereon;

(c) Awarding Plaintiff and the Class their reasonable costs and expenses incurred in this action, including counsel fees and expert fees;

(d) Granting extraordinary equitable and/or injunctive relief as permitted by law; and

(e) Such other and further relief as the Court may deem just and proper.

JURY TRIAL DEMANDED

Plaintiff hereby demands a jury trial.

Dated: November 8, 2018

/s/ Jamie J. McKey
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UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

Mona Abouzied, Individually and on Behalf of All Others Similarly Situated, Plaintiff, v. APPLIED OPTOELECTRONICS, INC., CHIH-HSIANG (THOMPSON) LIN, and STEFAN J. MURRY, Defendants.	Case No. 4:17-cv-02399 **CLASS ACTION** JURY TRIAL DEMANDED

~~FIRST~~[PROPOSED] SECOND CONSOLIDATED AMENDED CLASS ACTION COMPLAINT
FOR VIOLATIONS OF THE FEDERAL SECURITIES LAWS

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Court-appointed Lead Plaintiff Lawrence Rougier ("Plaintiff") brings this action pursuant to Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 (the "Exchange Act"), individually and on behalf of all other persons or entities who purchased or otherwise acquired publicly traded common stock and/or call options of Applied Optoelectronics, Inc. ("AOI," "Applied Optoelectronics," or the "Company") or sold put options of Applied Optoelectronics from February 23, 2017 through ~~February 21~~September 27, 2018, both dates inclusive (the "Class Period") and were damaged thereby (the "Class").

Plaintiff alleges in this ~~First~~Second Consolidated Amended Complaint (the "Complaint") the following based upon personal knowledge as to Plaintiff and Plaintiff's own acts, and upon information and belief as to all other matters based on the investigation conducted by and through Plaintiff's undersigned attorneys. This investigation included, among other things, a review and analysis of: (i) AOI's public filings with the U.S. Securities and Exchange Commission ("SEC"); (ii) Company presentations, press releases, and reports; (iii) transcripts of AOI conference calls with analysts and investors; (iv) securities analysts' reports and advisories concerning the Company; (v) news and media reports concerning the Company; (vi) interviews of confidential witnesses ("CW") with personal knowledge of relevant facts; and~~,~~ (vii) information readily obtainable on the internet.

Plaintiff believes that evidentiary support will exist for the allegations set forth herein after a reasonable opportunity for discovery. Most of the facts supporting the allegations contained herein are known only to the ~~defendants~~Defendants or are exclusively within their control.

I. SUMMARY OF THE ACTION

1. This action arises out of Defendants' near two-year campaign to deceive investors by concealing the inability of AOI's purported vertical integration model to transition its

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manufacturing from the 40G transceiver to the cutting-edge 100G transceiver to avoid losing its three large "hyperscale" data center customers—Amazon, Facebook and Microsoft—and stay ahead of competitors in the highly competitive semiconductor industry.

~~1.~~2. AOI is a manufacturer of optical transceivers, which connect computer servers at massive data centers that communicate data to personal computers, mobile phones, and other connected devices. AOI makes most of its transceiver components~~, including lasers to chips,~~ in-house at~~ far-flung~~ factories in Texas, China, and Taiwan.

3. ~~The Company sells nearly all of its products to a small group of technology giants like~~ During the Class Period, Amazon, Facebook~~,~~ and Microsoft~~, and Amazon, which operate so-called "hyperscale data centers." Amazon is AOI's biggest customer, representing~~ collectively accounted for between 68% and 80% of AOI's revenue~~ from its biggest, data center business segment.~~ . Amazon was AOI's largest customer through the second quarter 2017, accounting for 50% to 60% of the Company's total revenue, until it sought transceivers elsewhere as a result of product defect and yield issues with AOI's 100G transceivers. From the third quarter 2017 forward, Facebook, which became an AOI customer in the fourth quarter 2016, replaced Amazon as AOI's largest customer, accounting for between 31% and 52% of AOI's total revenue during the remainder of the Class Period.

~~2.~~4. These ~~companies' demand for data technology is insatiable. As consumers' and businesses' data consumption has risen,~~ data center customers ~~have demanded~~demand faster transceiver technology at lower prices and in greater volumes than ever before. Thus, the transceiver market is highly competitive: manufacturers compete fiercely on pricing, technology, and the speed at which they can supply their customers' needs.

5. Throughout the Class Period, ~~AOI presented itself as having a significant~~

~~competitive advantage over other transceiver manufacturers that better positioned it to fulfill growing customer demands. Specifically,~~ Defendants ~~regularly~~ touted ~~the Company~~AOI as a "vertically integrated" Company that could easily ~~transition~~respond to its customers' changing needs by transitioning from older technology to newer~~ technology because of its ability~~ , faster technology at a lower cost and with better quality control than its competitors. AOI's "vertically integrated" model purportedly allowed it to manufacture ~~these~~complicated transceiver components, including the critical "laser chips" (or simply "chip" in the parlance of Defendants) and optical subassemblies, in its own facilities~~—~~, rather than ~~acquiring major~~procuring costly components from other suppliers~~, allowing AOI~~.

~~3.~~6. AOI's manufacturing advantage supposedly allowed it to transition seamlessly from slower "40G" transceivers, which are comprised of four 10G laser chips, to faster "100G" transceivers~~.~~, which are comprised of four 25G laser chips. As Defendants stated on February 23, 2017, the first day of the Class Period:

> Our ability to internally manufacture lasers and light engines combined with our ability to quickly transition production between 40G and 100G products provides us with cost-leadership advantages, a faster time to market and the ability to quickly scale and adjust our throughput to meet growing demand.~~[1]~~

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7. ~~This action arises out of Defendants' year-long campaign to deceive investors about AOI's ability to transition its manufacturing to cutting-edge versions of optical transceivers and the future revenue it would get from sales of those transceivers to its largest customer, Amazon. In fact, the Company's~~ Production of AOI's 100G transceivers began in 2015, but in limited supply due to the Company's inability to obtain an acceptable "yield" at the Taiwan facility where the 100G transceivers are assembled before shipping to customers. "Yield" represents the portion of

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~~[1] Except where otherwise noted, all emphasis in quotations is added.~~

the total product produced that is not defective and functions properly. Yield is directly correlated to profitability and, thus, maintaining an acceptable yield is essential for transceiver manufacturers like AOI.

8. According to confidential witnesses, from the start of production in 2015 until approximately the third quarter of 2017, AOI's yield for its 100G transceivers was an abysmal 40%. This level of yield was considered "so bad" that during 2017, AOI was forced to send engineers from its Sugar Land, Texas facility to Taiwan to fix the problem. Because AOI's yields were too low to meet Amazon's demand at the start of the Class Period, AOI had already received demand forecasts from Amazon for the following six to twelve months as required by the parties' supply agreement. These forecasts showed that Amazon's demand for the upcoming year was significantly lower, as Amazon was transitioning to obtain transceiver components from other suppliers. Indeed, the percentage of AOI's revenue attributable to Amazon steadily declined throughout the Class Period, dropping from 63% in Q4 2016 to 56%, 47%, and 10% for the first, second and third quarters of 2017, respectively.

9. While AOI was able to eventually get the yield for 100G transceivers up to an acceptable level of 80 to 90% by Q4 2017, the 100G transceivers were also plagued with a second problem that existed prior to the Class Period and persisted throughout—the coating on the component 25G laser chips that made up the 100G transceiver was defective, making the 100G transceiver prone to failure within a short period of time after installation at the customers' data centers.

10. A former AOI design engineer during the Class Period informed AOI management of the chip coating issue in 2017, but management refused to fix the problem. This witness, who described the chip coating defect as a "ticking time bomb," left AOI at the end of 2017, not wanting

to be associated with the inevitable failure of the 100G transceiver. Thus, the reliability issues persisted throughout the Class Period and AOI's supposed vertically-integrated factories never could transition from making older technology to new technology~~ as quickly~~, as Defendants represented. ~~Contrary to Defendants' repeated representations, Amazon had already told AOI, via detailed~~

11. These pervasive product issues caused Amazon and Facebook to receive transceivers with latent defects caused by the defective laser chips that emerged shortly after the devices had been installed in their data centers.

~~4.~~12. As a result of AOI's inability to meet its top customers' demand with reliably functioning 100G transceivers, AOI's sales plummeted even further when the chips inevitably failed—Amazon's sales ~~forecasts early on in the Class Period, that it was not going to purchase the large quantities of the product that Defendants had told investors to expect.~~ declined from 47% in the second quarter 2017 to 10% in the third quarter 2017 and, as for Facebook, it suspended and delayed Q3 2018 shipments from AOI, is buying less in Q4, and prospects for future AOI purchases are dim, as it is now filling its demand for transceivers from Intel.

13. ~~In May 2017, Defendants – who possessed sales forecasts for its biggest customers' future demands – falsely asserted that its three largest customers' demand would continue unabated, when in fact its biggest customer's forecasts contradicted this assertion. Defendant Murry stated at the time~~Defendants were aware of the problems with AOI's defective transceivers, low yields, and massively declining sales orders from Amazon and Facebook prior to and throughout the Class Period. For example, Jason Chien ("Chien"), the director of the manufacturing center in Taiwan in charge of transceiver production, reported yields directly to Defendant Lin by video call, phone call, or in-person every couple of weeks throughout the Class

Period. Moreover, Defendant Lin's special assistant, Chan Chih (David) Chen, attended weekly research and development ("R&D") meetings throughout the Class Period during which the defective 100G transceiver laser chip problems and production delays and shortfalls were discussed and promptly reported back to Lin. Huanlin Zhang ("Zhang"), the manager responsible for laser chips in the Sugar Land facility. Zhang ran the R&D meetings and reported on yields directly to Defendant Lin before earnings reports were issued. Defendants also had access to the SAP enterprise resource management system ("SAP") containing real time updates on customer demand and orders as required by supply agreements with AOI's customers, including Amazon and Facebook.

~~5.~~14. Yet, Defendants falsely asserted throughout the Class Period that its three largest customers' demand would continue unabated. For example, Defendant Murry stated during a May 2017 analyst call that "***right now, we're using every device that we can make in our internal production, basically. And given the forecast that we see from the customers, I don't see that situation changing. . . .***" Defendants further ~~claimed~~touted throughout the Class Period that they knew ~~what to~~the level of demand AOI could expect from ~~AOI's~~its customers, responding to analysts, "***[D]o we have good visibility into our customers? And I think the answer is yes***."[2]

~~6. The above statements, along with others like it made during the Class Period, were false and Defendants knew it. As Defendants knew from the beginning of the Class Period but concealed from investors, Amazon had decreased its projected sales and AOI was scrambling to remediate pressing operational challenges associated with the transition to 100G technology, which they either downplayed or did not disclose at all to investors.~~

~~7. Moreover, Defendants were well aware of but dismissed out of hand the~~

[2] Except where otherwise noted, all emphasis in quotations is added.

~~growing threat from competitors who had opted against the vertical integration model. Those competitors – including in particular the companies MACOM and Fabrinet – were engaged in what is called the merchant model, whereby they acquired components of transceivers from multiple companies to make their own transceivers for their customers. Defendants said, without basis, that the merchant model posed no threat to their business.~~

~~8. In fact, Defendants already knew, from the detailed sales forecasts Amazon provided to the Company, among other sources, that Amazon's turn to other manufacturers using the merchant model – and away from the Company – was well underway.~~

~~9.~~ During an August 3, 2017 earnings call, Defendants ~~would begin~~began to reveal the truth~~. Specifically, during the August 3 call, Defendants admitted that their supposedly "quick[] transition" from 40G to 100G transceivers was not so "quick" after all. They specified for the~~ when they first ~~time that "change-over time" on the product lines was six weeks:~~

> ~~***[T]here's about a 6-week time from when we produce a laser to when [it] actually gets shipped out as a transceiver***. And so the time to actually shift over the production is not long, but the time to – between doing that shift and when you start to see the end product transceivers coming out is about 6 weeks.~~

15. ~~At that time, AOI also~~ disclosed that AOI expected 40G sales from Amazon ~~had sagged~~to sag significantly~~, and that Amazon was continuing to buy AOI's 40G transceivers rather than~~ in the third quarter and that the Company's ~~100G transceivers.~~ sales of 100G transceivers would not make up the difference. On the news, the Company's share price fell over 34% from a close of $97.99 per share on August 3, 2017 to $64.60 per share on August 4, 2017, on unusually high volume.

16. Instead of acknowledging that the decline in Amazon revenue represented the new normal for AOI, Defendants ~~conjured up a false excuse, blaming Amazon for lagging in adapting to~~characterized the ~~new technology,~~drop in 40G sales as temporary and ~~reassuring~~reassured

investors that higher sales of 100G transceivers to Amazon would be ~~coming soon.~~forthcoming. In reality, Amazon had already begun going elsewhere to purchase its 100G transceivers, a fact that would have been reflected in the forecasts and projections it provided AOI.

~~10.~~17. Defendants disclosed neither the 100G transceiver quality issues, nor Amazon's declining transceiver sales forecasts to investors. They did just the opposite. During the same August 3, 2017~~, they~~ earnings call, Defendants reiterated that they expected to see "***a resumption of growth from our largest customer***"—Amazon—based on a supposed "***significant amount of committed orders and a good forecast from all 3 of our customers.***" ~~In fact, as would later be revealed, Amazon was sharply cutting *all* of its purchases from AOI because it had turned to new sources for transceivers.~~ To make up for lost sales to Amazon, AOI focused on increasing its business with an unsuspecting Facebook which, as a relatively new customer, was not yet aware of the laser chip coating problem.

~~11.~~18. ~~An~~In an October 12, 2017 earnings announcement, AOI further shocked the market when Defendant Murry admitted that—contrary to AOI's persistent representations that Amazon's forecasted demand for 100G was strong~~—that~~ Amazon had lowered its overall demand for ***both 40G and 100G***. Indeed, revenue from Amazon fell from 47% of AOI's total revenue to a mere 10%. On that news, AOI's share price plummeted by over 20% to a closing price of $47.01 per share on October 13, 2017, on heavy trading volume.

~~12.~~19. ~~In~~On February 21, 2018, ~~the full truth became known when~~ AOI announced that it had~~ actually~~ fallen behind in its transition from 40G to 100G due to "customer-specific" issues, i.e. a collapse in Amazon purchases. ~~40G data center revenue rose from 41% of data center revenues in Q3 to 58% in Q4, while 100G data center revenue—supposedly the future for the~~

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~~Company fell from 56% to 35%.~~ On this news, AOI's shares fell $7.04 from a close of $34.55 on February 21, 2018 to a close of $27.51 on February 22, 2018.

20. Following the disclosures revealing that AOI's lost sales from Amazon represented a secular rather than temporary setback, Defendants stoked investor hopes that new business, particularly from Facebook, would rekindle AOI's growth. But in fact, still unbeknownst to investors, the same manufacturing and product quality issues with 25G laser chips and 100G transceiver that permanently damaged the Amazon relationship during the first part of the Class Period had also infected AOI's relationship with Facebook.

21. On September 27, 2018, analyst Loop Capital Markets downgraded its recommendation from Hold to Sell following Loop's industry checks identifying that: 1) AAOI is having product quality issues in 100G transceivers, and 2) the pricing environment for 100G data center optics remains very tough. Loop Capital Markets lowered its price target from $45.00 per share to $20.00 per share. On Loop Capital Markets' announcement, AOI's share price fell from a close of $31.34 per share on September 26, 2018 to $28.36 per share on September 27, 2018, a drop of 9.5%, on heavy trading volume.

22. The following day, on the morning of September 28, 2018, AOI issued a press release in which Defendant Lin confirmed AOI's 25G laser chips were defective and, as a result, AOI would "suspend" future shipments of the transceivers to a "specific customer," later identified as Facebook:

> During the third quarter, ***we identified an issue with a small percentage of 25G lasers*** within a specific customer environment. Consistent with AOI's commitment to supreme product quality and customer support, ***we mutually agreed with the customer to temporarily suspend shipments of certain transceivers utilizing these lasers*** while we worked to gain a deeper understanding of the scope of the issue and implement a solution. We have since determined that less than one percent of these lasers were subject to this issue, we have enacted a solution and with the agreement of the customer, resumed shipments.

~~13.~~ Despite ~~Defendants knew that their statements about the benefits of the vertical integration model and their representations about the prospects for future sales of 100G transceivers to Amazon were false and misleading. As confidential witnesses have reported, Defendants micromanaged the manufacturing process, which was rife with problems reported up to AOI's C-Suite. They kept a keen eye on sales through weekly meetings and internal reports from the SAP system, among other sources. Defendants also told investors that they had significant visibility into their customers' needs, and in fact Amazon repeatedly told Defendants what future volumes of transceivers it would need via periodic forecasts and minimum contractual purchases.~~

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~~14. With respect to the vertical integration model, confidential witnesses stated that AOI was facing at least two known but undisclosed challenges. First, there were known, undisclosed difficulties in achieving high-quality products in sufficient volumes to satisfy customer demands. Moreover, while AOI repeatedly indicated that its success manufacturing large volumes of 40G transceivers portended immediate success with 100G, in fact the improvements the Company was able to make in its "yield rate" for 40G transceivers – i.e. the factory was able to produce chips at close to its maximum theoretical production capacity – were hard won, and not replicated with the newer and more challenging 100G technology.~~

~~15. There were also known but undisclosed issues with operations and quality control. In its rush to bring products to market, AOI was cutting corners in manufacturing and quality assurance. For example, instead of having a dedicated team of quality assurance inspectors for completed transceivers, the Company relegated that task to research and development engineers, who were overworked and not specifically trained for that responsibility. These sloppy practices led to essential customers, including Amazon receiving faulty test batches of new products.~~

~~16. While all of these undisclosed issues put AOI on unsteady footing in an increasingly~~

~~competitive market, Defendants did not disclose these materialized risks to investors.~~

~~17. In spite of all these true facts – delays in transitioning to 100G manufacturing, quality assurance issues, and declining forecasted Amazon demand caused by production problems and "merchant model" competition – Defendants nevertheless continued to paint a false rosy picture of AOI's vertically integrated manufacturing operations and its expectations for a recovery in sales from Amazon.~~

~~18. Defendants Lin and Murry had a clear motive for continuing to misrepresent the state of the Company. They sold shares for significant profits at pivotal points during the Class Period, either with no 10b5-1 trading plan in place, or with 10b5-1 trading plans entered into *__during the Class Period__*. Defendant Lin generated proceeds of approximately $729,000 (making a profit of approximately $642,000) from sales during the Class Period. Defendant Murry generated proceeds of approximately $630,000 (making a profit of well over $218,000).~~

dismissing the 25G laser chip issue as immaterial, in the same press release, AOI lowered 3Q 2018 revenue guidance from between $82 million and $92 million to between $55 million and $58 million, or approximately ***37%***.

23. Lin's admission confirms that the reason Amazon was purportedly slow to transition to 100G was because of AOI's laser chip issue with its 100G optical transceivers. Indeed, confidential sources have confirmed that Amazon and Facebook both used the same 25G laser chips with the same chip coating problem and that Facebook's issues were the result of products shipped during the prior year that had started failing.

24. Following the analyst's revelation and Defendants' admission, AOI's share price fell from a close of $28.36 per share on September 27, 2018 to $24.66 per share on September 28, 2018, a drop of 13%, on heavy trading volume, for a total drop from September 26 to 28, 2018 of

21.3%.

25. After the Class Period, on November 7, 2018, Defendants announced Q3 2018 net revenue had declined to $56.4 million as compared to $89 million in the third quarter of 2017. On the earnings call that immediately followed, Defendant Murry confirmed the laser chip issue and admitted that AOI had been "***troubleshoot[ing]***" the 25G laser chip issue for Facebook and that this "quality issue" prevented AOI from "complet[ing] the manufacturing" process, forcing AOI to take an approximate $1.5 million inventory write-down in the third quarter.

26. As is set forth below, Defendants' statements and omissions were false and misleading, and caused damage to Plaintiff~~.~~ and the putative Class.

~~19.~~

II. JURISDICTION AND VENUE

~~20.~~27. The federal law claims asserted herein arise under and pursuant to Sections 10(b) and 20(a) of the Exchange Act (15 U.S.C. §§ 78j(b) and 78t(a)) and Rule 10b-5 promulgated thereunder by the SEC (17 C.F.R. § 240.10b-5).

~~21.~~28. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. § 1331 and Section 27 of the Exchange Act (15 U.S.C. § 78aa.).

~~22.~~29. Venue is proper in this District pursuant to Section 27 of the Exchange Act and 28 U.S.C. § 1391(b) because certain of the acts alleged herein, including the preparation and dissemination of material false and/or misleading information, occurred in this District.

~~23.~~30. In connection with the acts alleged herein, Defendants, directly or indirectly, used the means and instrumentalities of interstate commerce, including but not limited to the mails, interstate telephone communications, and the facilities of a national securities exchange.

III. PARTIES

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A. Lead Plaintiff

~~24.~~31. Court-appointed Lead Plaintiff Lawrence Rougier, as set forth in his certification and transactions supporting the motion for consolidation of related actions, appointment as Lead Plaintiff, and for approval of selection counsel, Dkts. 9-2, 9-3 and 9-4, purchased AOI securities at artificially inflated prices during the Class Period and, as a result, was damaged thereby.

B. The Corporate Defendant

~~25.~~32. Defendant Applied Optoelectronics was incorporated in the State of Texas in 1997 and converted to a Delaware corporation in March of 2013. The Company's principal executive offices are located at 13139 Jess Pirtle Blvd., Sugar Land, Texas, 77478. Applied Optoelectronics' common stock trades on the NASDAQ under the ticker symbol "AAOI."

C. The Individual Defendants

~~26.~~33. Defendant Chih-Hsiang (Thompson) Lin ("Lin") founded Applied Optoelectronics and has been the Company's President and Chief Executive Officer ("CEO") since inception. Defendant Lin has also served as AOI Chairman of the Board since January 2014. He has served as Director or Chairman of the Board at all times since 1997. Defendant Lin holds a Bachelor's degree in Nuclear Engineering from National Tsing Hua University in Taiwan and a Master's degree and Ph.D. in Electrical and Computer Engineering from the University of Missouri-Columbia.

~~27.~~34. Defendant Stefan J. Murry ("Murry") has been AOI's Chief Financial Officer ("CFO") since August 2014 and the Chief Strategy Officer since December 2012. Defendant Murry has held various positions with the Company since 1997: Vice President of Sales and Marketing from June 2004 to December 2012; Director of Sales and Marketing from January 2000 to June 2004; and, Senior Engineer of Device Packaging from February 1997 to January 2000.

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Murry has been issued multiple patents in the optoelectronics industry and other related industries. He received his Bachelor's and Master's degrees in Physics and a Ph.D. in Electrical Engineering from the University of ~~Houston~~Sugar Land.

~~28.~~35. Lin and Murry are collectively referred to herein as the "Individual Defendants." Applied Optoelectronics and the Individual Defendants are collectively referred to herein as the "Defendants."

~~29.~~36. Each of the Individual Defendants:

(a) directly participated in the management of the Company;

(b) was directly involved in the day-to-day operations of the Company at the highest levels;

(c) was privy to confidential proprietary information concerning the Company and its business and operations;

(d) was directly or indirectly involved in drafting, producing, reviewing and/or disseminating the false and misleading statements and information alleged herein;

(e) was directly or indirectly involved in the oversight or implementation of the Company's internal controls;

(f) was aware of or deliberately recklessly disregarded the fact that the false and misleading statements were being issued concerning the Company; and/or

(g) approved or ratified these statements in violation of the federal securities laws.

~~30.~~37. Because of the Individual Defendants' positions within the Company, they had

access to undisclosed information about AOI's business, operations, operational trends, financial statements, markets and present and future business prospects via access to internal corporate documents (including AOI's operating plans, budgets and forecasts and reports of actual operations and performance), conversations and connections with other corporate officers and employees, attendance at management and Board meetings and committees thereof and via reports and other information provided to them in connection therewith.

~~31.~~38. As officers of a publicly-held company whose securities were, and are, registered with the SEC pursuant to the federal securities laws of the United States, the Individual Defendants each had a duty to disseminate prompt, accurate and truthful information with respect to AOI's financial condition and performance, growth, operations, financial statements, business, markets, management, earnings and present and future business prospects, and to correct any previously-issued statements that had become materially misleading or untrue, so that the market price of AOI's publicly-traded securities would be based upon truthful and accurate information. The Individual Defendants' misrepresentations and omissions during the Class Period violated these specific requirements and obligations.

~~32.~~39. The Individual Defendants, because of their positions with the Company, possessed the power and authority to control the contents of AOI's reports to the SEC, press releases, and presentations to securities analysts, money and portfolio managers, and institutional investors, *i.e.*, the market. Each Individual Defendant was provided with copies of AOI's reports and press releases alleged herein to be misleading prior to, or shortly after, their issuance and had the ability and opportunity to prevent their issuance or cause them to be corrected. Because of their positions and access to material non-public information available to them, each of these defendants knew that the adverse facts specified herein had not been disclosed to, and were being concealed from,

the public, and that the positive representations which were being made were then materially false and/or misleading. The Individual Defendants are liable for the false statements pleaded herein, as those statements were each "group-published" information, the result of the collective actions of the Individual Defendants.

~~33.~~40. Each of the Individual Defendants are liable as a participant in a fraudulent scheme and course of business that operated as a fraud or deceit on purchasers of Applied Optoelectronics Securities by disseminating materially false and misleading statements and/or concealing material adverse facts. The scheme: (i) deceived the investing public regarding AOI's business, operations, management and the intrinsic value of its securities and (ii) caused Plaintiff and other shareholders to purchase AOI securities at artificially inflated prices.

IV. STATEMENT OF FACTS

A. AOI Relies Heavily on Its Internet Data Centers Business

~~34.~~41. AOI was founded in 1997 and became a publicly traded company in September 2013. AOI claims to be the leading, vertically-integrated provider of fiber-optic networking products, designing and manufacturing at varying levels of integration, from components, subassemblies and modules, to complete turn-key equipment. AOI ~~states~~boasts that its vertically integrated manufacturing model provides the Company with advantages in rapid product development, fast response to customer requests, and control over product quality and manufacturing costs.

42. AOI operates manufacturing facilities in Sugar Land, Texas, Ningbo, China (PRC), and Taipei, Taiwan (ROC). In Texas, AOI has approximately 373 employees and manufactures laser chips, subassemblies (TOSAs and ROSAs), and components. The subassemblies are used by the Company's other facilities to manufacture components. In Taipei, where AOI has

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approximately 1,373 employees, AOI manufactures optical components such as the butterfly laser, which incorporates laser chips, subassemblies and components manufactured at the Texas location, as well as the transceivers used by the internet data centers. In Ningbo, where AOI has approximately 1,308 employees, AOI manufactures the more labor-intensive components and optical equipment systems, such as optical subassemblies. The majority of AOI's optical transceivers utilize the Company's own lasers and subassemblies (also known as "light engines").

43. AOI has four primary end-markets: internet data center, cable television ("CATV"), fiber-to-home ("FTTH"), and telecommunications ("telecom"). Sales in all four of AOI's end markets are driven by increasing bandwidth demand due to the growth of network-connected devices, video traffic, cloud computing, and online social networking. To supply higher bandwidth, AOI's customers must improve their network infrastructure, and more specifically the equipment that transmits the information must be updated to faster speeds.

~~35. AOI has four primary end-markets: internet data center, cable television ("CATV"), fiber-to-home ("FTTH"), and telecommunications ("telecom").~~

~~36.~~44. The CATV market is AOI's most established market, for which it supplies lasers, transmitters and transceivers, and turn-key equipment to customers such as Cisco Systems, Inc. and Arris Group, Inc.

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~~37.~~45. For FTTH, the Company's newest market, AOI supplies internet service providers with technology for delivering bandwidth to customers' homes.

~~38.~~46. In the telecom market, AOI's focus is on supplying optical products designed to transmit signals used in 4G Long Term Evolution ("LTE"), mobile networks.

~~39.~~47. The internet data center market is AOI's largest and fastest growing market, providing products to large internet-based ("Web 2.0") data or "hyperscale" center operators.

~~40.~~1. AOI generates the majority of its internet data center revenue from the sale of optical transceivers. As customer demand has increased, the technology for achieving faster communication speeds has continued apace. While transceivers capable of transmitting data at one gigabit per second ("Gbps" or "G") were cutting-edge in 2013, 40G transceivers had almost completely supplanted both 1G and 10G transceivers by 2015. 100G transceivers entered the market in late 2015, but in limited supply, and demand for 40G devices persisted. ~~Sales in all four of these end markets are driven by increasing bandwidth demand due to the growth of network-connected devices, video traffic, cloud computing, and online social networking. To supply higher bandwidth, AOI's customers must improve their network infrastructure, and more specifically the equipment that transmits the information must be updated to faster speeds.~~

48. ~~The~~Indeed, in 2016, the majority of AOI's data center sales were for 40G transceivers. However, by the beginning of the Class Period, customers' attention had turned to newly developed 100G transceivers and highly anticipated 200G and 400G transceivers.

~~41.~~49. As demonstrated in the chart below, the internet data center end-market ~~is AOI's largest, representing over~~represented approximately 77~~% and~~%, 80%, and 76% of the Company's revenue for 2016~~ and~~, 2017 ~~revenues~~and the nine months-ended September 30, 2018, respectively.

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~~AOI TOTAL REPORTED REVENUE (in millions)~~						
~~Year~~	~~CATV~~	~~Data center~~	~~FTTH~~	~~Telecom~~	~~Other~~	~~Total ($m)~~
~~2014~~	~~$47.4 (36.3%)~~	~~$64.5 (49.4%)~~	~~$13.6 (10.4%)~~	~~$3.9 (3.0%)~~	~~$1.2 (0.9%)~~	~~$130.6~~
~~2015~~	~~$53.7 (28.3%)~~	~~$123.3 (64.9%)~~	~~$2.5 (1.3%)~~	~~$9.6 (5.1%)~~	~~$0.8 (0.4%)~~	~~$189.9~~
~~2016~~	~~$43.5 (16.7%)~~	~~$201.3 (77.2%)~~	~~$1.6 (0.6%)~~	~~$12.9 (5.0%)~~	~~$1.3 (0.5%)~~	~~$260.6~~
~~2017~~	~~$60.8 (15.9%)~~	~~$306.7 (80.2%)~~	~~$0.5 (0.1%)~~	~~$12.9 (3.4%)~~	~~$1.4 (0.4%)~~	~~$382.3~~

AOI TOTAL REPORTED REVENUE BY SEGMENT ($m)

	Data Center	CATV	Telecom	FTTH	Other	Total
2014	$64.5	$47.4	$3.9	$13.6	$1.2	$130.4
	49%	36%	3%	10%	1%	
2015	$123.3	$53.7	$9.7	$2.5	$0.8	$189.9
	65%	28%	5%	1%	0%	
2016	$201.3	$43.6	$12.9	$1.6	$1.3	$260.7
	77%	17%	5%	1%	1%	
2017	$306.7	$60.8	$12.9	$0.5	$1.5	$382.3
	80%	16%	3%	0%	0%	
Nine months-ended 9/30/18	$158.6	$39.0	$10.4	$0.5	$0.9	$209.4
	76%	19%	5%	0%	0%	

B. AOI's Internet Data Centers Business Depends Almost Entirely on Sales of Optical Transceivers to Three Internet Giants

~~42. Immediately prior to and during the Class Period, AOI's three largest internet data center customers were Amazon, Microsoft, and Facebook. Based on analysts' reports and publicly available information, AOI's revenues from each of those customers was approximately as follows:~~

~~Quarter~~	~~% revenues~~		
	~~Amazon~~	~~Microsoft~~	~~Facebook~~
~~1Q16~~	~~52%~~	~~25%~~	~~N/A~~
~~2Q16~~	~~42%~~	~~32%~~	~~N/A~~
~~3Q16~~	~~56%~~	~~19%~~	~~N/A~~
~~4Q16~~	~~63%~~	~~>10%~~	~~11%~~
~~1Q17~~	~~56%~~	~~>10%~~	~~19%~~
~~2Q17~~	~~47%~~	~~9%~~	~~37%~~
~~3Q17~~	~~10%~~	~~24%~~	~~37%~~
~~4Q17~~	~~21%~~	~~19%~~	~~33%~~

~~The sales to these three customers consist almost entirely of components of~~

1. Technical Overview of Optical Transceivers

50. The transceiver used in fiber optic communication systems ~~called optical transceivers. Fiber optic communication systems consist~~consists of (1) an optical *transmitter*, which converts an electrical signal into an optical signal; (2) a fiber optic cable containing

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~~several~~one more or bundles of optical fibers, through which the optical signal is transmitted; (3) optical amplifiers to boost the power of the optical signal; and (4) an optical *receiver* that reconverts the received optical signal back to the original transmitted electrical signal.[3] ~~Transmitters and receivers are usually contained within one component called the transceiver. The~~

~~43.~~51. The *transmitter* in a transceiver receives data in the form of electrical signals sent by computer devices via fiber optic cables and converts those signals into optical ~~transmitter converts the electrical signal to an optical signal~~signals (*i.e.*, a laser beam) using laser diodes, which are "tiny semiconductor devices (chips)."[4] The *receiver* "use[s] semiconductor detectors (photodiodes or photodetectors) to convert optical signals to electrical signals~~." *Id.*~~", which can then be transmitted electronically to another computer device.

~~44.~~52. Most of AOI's transceivers are plugged into switches and computer servers within ~~so-called "~~hyperscale data centers~~"~~, which store, process, and communicate massive amounts of data for websites (like Facebook) or for "cloud computing" services (provided by companies including Amazon and Microsoft ~~to~~for their own applications and for other businesses). Data from these centers ~~is~~are then transmitted through network connections to internet service providers, then onto individual digital devices. Data centers have increased in physical size and accelerated their data transmission rates to catch up to consumers' and businesses' ever-growing consumption of digital bandwidth. Because the transmission speed of the optical transceiver limits the speed at which a data center can communicate information, data center customers have sought faster, smaller, and more energy-efficient transceivers. ~~While transceivers capable of transmitting data at~~

[3] http://www.iaeng.org/publication/WCE2014/WCE2014_pp438-442.pdf
[4] http://www.thefoa.org/tech/ref/appln/transceiver.html

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~~one gigabit per second ("Gbps" or "G") were cutting-edge in 2013, 40G transceivers had almost completely supplanted both 1G and 10G transceivers by 2015.[5]~~

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53. During the Class Period, AOI aggressively pushed its customers (including Amazon and Facebook) to adopt the CWDM network architecture ("CWDM") so that they would save costs by using less fiber in their data centers. CWDM technology allows a transceiver to transmit 100G or more per second using multiple "lambdas" (i.e., colors) of laser light on a single optical fiber. When data is being transmitted over long distances (as is the case in increasingly vast data centers), a CWDM transceiver saves money on fiber optic cable because fewer cables are needed to transmit the same amount of data.

54. An Optical Mux in a 100G CWDM transceiver "multiplexes" the wavelength of a laser signal using an optical multiplexer ("Mux"), which Mux consolidates multiple optical carrier signals (*e.g.*, laser light from four different 25G laser diodes in a 100G CWDM4 transceiver) onto a single-mode fiber ("SMF") cable by using different lambdas or wavelengths (*i.e.*, colors) of laser light[6] (by contrast, a parallel single-mode 4-lane ("PSM4") transceiver uses an eight-fiber optical connector). CWDM4 transceivers thus represent an advancement over parallel single motor ("PSM") transceivers, which are cheaper on their own because they do not require Mux and Demux components.

55. According to Defendant Murry, during a May 4, 2017 earnings call, "the CWDM products make up the majority. As a percentage of the overall revenue, it's more than doubled since last year." Similarly, during AOI's Q3 2017 earnings call, Murry stated that AOI's "CWDM full MSA spec 100G transceiver was our fastest-growing datacenter product line in the [third] quarter," with "revenue from 100G CWDM products increas[ing] by 21% compared to Q2."

~~[5] A 40G transceiver contains four 10G chips and a 100G transceiver contains four 25G chips.~~

[6] https://en.wikipedia.org/wiki/Wavelength-division_multiplexing

During the first quarter 2018 Conference Call, Defendant Murry similarly claimed that AOI "continue[s] to see a trend towards more CWDM and less PSM. I think that's been a pretty consistent theme of ours *for a number of quarters*."

56. Amazon and Facebook received CWDM4 transceivers from AOI throughout the Class Period.

2. Optical Transceiver Sales

57. Immediately prior to and during the Class Period, AOI's three largest internet data center customers were Amazon, Microsoft, and Facebook. The sales to the foregoing three customers consist almost entirely of optical transceivers.

58. Based on calculations using AOI's filings, analysts' reports and publicly available information, AOI's revenues from each of those customers were approximately as follows:

AOI EST. TOTAL REVENUE BY CUSTOMER ($m) (ALL BUSINESS SEGMENTS)

Quarter	Net Revenue ($m)	Amazon	Facebook	Microsoft	All Other Customers	Total
Q1 2016	$50.4	52%	N/A	25%	23%	100%
Q2 2016	$55.3	52%	N/A	25%	23%	100%
Q3 2016	$70.1	56%	N/A	19%	25%	100%
Q4 2016	$84.9	63%	9%	9%	19%	100%
Q1 2017	$96.2	56%	19%	19%	6%	100%
Q2 2017	$117.4	47%	27%	9%	17%	100%
Q3 2017	$88.9	10%	37%	24%	29%	100%
Q4 2017	$79.8	21%	33%	19%	27%	100%
Q1 2018	$65.2	14%	36%	26%	24%	100%
Q2 2018	$87.8	10%	52%	16%	22%	100%

Q3 2018	$56.4	15%	31%	22%	32%	100%

59. For the full year 2017, Amazon, Facebook and Microsoft represented 35.4%, 28.6%, and 13.8%, respectively, of AOI's total revenue.

C. Amazon and Facebook Are Required Under Supply Agreements With AOI to Provide Forecasts of Their Demand Six to Twelve Months in Advance

60. An agreement with Facebook entered into on December 20, 2017, effective November 8, 2017 and disclosed in heavily redacted form by the Company in a Form 8-K filed on February 21, 2018 (the "Facebook Supply Agreement") illustrates AOI's contracting practices with its largest datacenter customers.

~~45.~~ According to the Facebook Supply Agreement, for calendar years 2019 and 2020, ***Facebook will provide "accurate 6 month rolling forecasts to AOI, identifying Facebook's potential future product needs and delivery expectations on a calendar quarter basis***." Furthermore, Facebook was obligated to provide ***quarterly purchase commitments*** for 2018 and "demand forecasts for the subsequent year. . . in [the] third calendar quarter of the current" calendar year and "the parties will finalize the actual CY 2019 support and purchase commitment by *****." ~~100G transceivers entered the market in late 2015, but in limited supply, and demand for 40G devices persisted. Indeed, in 2016, the majority of AOI's data center sales were for 40G transceivers. However, by the beginning of the Class Period, customers' attention had turned to newly developed 100G transceivers and highly anticipated 200G and 400G transceivers. AOI asserted during its February 23, 2017 investor conference call that 100G demand in 2017 would exceed 40G demand, the eclipse would be "gradual," and that "100G will more than make up for" the loss of 40G sales. As discussed below, Defendants knew this was not true because AOI's vertical integration was not as seamless as claimed, leading to quality issues and the inability to keep up with demand in the face of increased competition in the 100G market.~~

~~C. AOI Touted That It Held a Dominant Technological and Manufacturing Position in Cutting Edge 100G Optical Transceivers When, In Fact, Due to Capacity Constraints and Product Issues, AOI Was Rapidly Losing 100G Market Share~~

61. ~~AOI describes itself as having a vertically integrated manufacturing system. It operates manufacturing facilities in Sugarland, Texas, Ningbo, China (PRC), and Taiwan (ROC). In Texas, AOI manufactures laser chips, subassemblies, and components. The subassemblies are used by the Company's other facilities in manufacturing components. In Taiwan, AOI manufactures optical components such as the butterfly laser, which incorporates laser chips, subassemblies and components manufactured~~

~~46.~~1. The supply agreement also requires that "Facebook will purchase the balance of committed demand at the ~~Texas location, as well as the transceivers used by the internet data centers. In China~~~~, AOI manufactures the more labor-intensive components and optical equipment systems, such as optical subassemblies. The majority of AOI's optical transceivers utilize the Company's own lasers and subassemblies (also known as "light engines").~~

~~47.~~1. ~~Throughout the Class Period, AOI falsely represented that, due to this vertical integration, it was better equipped than its competitors to satisfy customers' shifting demands from 40G to 100G transceivers. As it stated during a February 23, 2017 (the first day of the Class Period) earnings call:~~

> **~~Our ability to internally manufacture lasers and light engines combined with our ability to quickly transition production between 40G and 100G products provides us with cost-leadership advantages, a faster time to market and the ability to quickly scale and adjust our throughput to meet growing demand.~~**

~~49.~~1. ~~During the February 23, 2017 call, Defendant Murry further stated that AOI "expect[ed] to maintain [its] leadership position as [it] continue[d] the transition to 100G" and that "the similarity between 100G and 40G modules really~~ ***~~gives us an advantage in terms of being~~***

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~~***able to ramp that up quickly*.” Murry also commented that AOI did not see the anticipated decline in 40G sales as “problematic because we can transition our manufacturing from 40G to 100G and it just gives us additional capacity on the 100G product. So I will say also that we don’t really expect a sharp decline in 40G.”~~

~~50. While Defendants publicly represented that AOI could make a seamless transition from one speed of transceiver to another, behind the scenes, the Company had supply chain issues of its own, causing it to have to scramble to accommodate large-scale production of a proliferating array of products for its increasingly demanding customers.~~

~~51. Confidential Witness 1 (“CW1”) was employed~~end of each respective quarter at ~~AOI as an engineer involved with optical module and transceiver development, as well as manufacturing and procurement (i.e., procuring components that AOI did not manufacture itself at volume prices for the transceivers). CW1 worked~~the unit price agreed for the shortfall quarter pursuant to the table in Table 2” [table of negotiated quarterly price for ~~AOI for several years prior to the Class Period, leaving the Company approximately half-way through it. During CW1’s employment at AOI, CW1 attended meetings every Wednesday at 4:30 pm Central Time with all R&D managers at AOI’s Texas facility, along with various product managers, engineers, senior engineers, and David Chen, a special assistant to Defendant Lin who was also in charge of corporate quality assurance. An Excel file with notes on what was discussed at these meetings, along with any PowerPoint presentations, was kept on the shared network drive accessible by anyone in the R&D department under the projects folder.~~

~~52. CW1 stated that at the weekly meetings, a frequent topic of discussion was “yield issues in Taiwan.” Each individual chip is tested at each stage of the transceiver assembly process to determine if the device is functioning properly, and the portion that is found to do so is called~~

~~the "yield." It was difficult to achieve high production yields during the early months of manufacturing a new~~the product~~. For example, when AOI was having trouble with yields for its 40G transceivers in 2015 or 2016, the Company was compelled to send an engineer from the Houston facility to Taiwan to increase yields to the extraordinarily high rate 90% from an abysmal 40%. But, according to CW1, the process of generating such results takes long periods of sustained effort: "[w]hen you just start a new product, you can't get 90% yield immediately." As is described below, AOI's admitted difficulties transitioning from 25G to 100G transceivers suggest that, during the Class Period, AOI never reached the yields it obtained for 40G chips.~~

> ~~CW1 stated that the process of transitioning from manufacturing chips for 40G transceivers to those for 100G transceivers was not a simple one. CW1 explained that to increase the speed of a transceiver, AOI could not merely swap out one chip for another. Rather, it first needed to update the capabilities of the Texas facility where it manufactured transceiver chips. The 100G transceiver requires four 25G chips, while the 40G transceiver requires four 10G chips. Moreover, once processes were in place to manufacture chips for 100G transceivers, it was no guarantee that yields would increase. Indeed, according to CW1, the higher the speed, the more difficult it is to manufacture the chip.~~

~~54. In addition to having difficulties transitioning between manufacturing chips for 40G and 100G transceivers at their Houston facility, AOI also faced additional difficulties producing multiple varieties of 40G and 100G transceivers to satisfy customer demands. According to CW1, by the beginning of the Class Period, there were multiple varieties of each speed of transceiver, such as "PSM4" transceivers (used by Amazon) and "CWDM" transceivers (used by Facebook). For each type of transceiver, there would be further differentiated products, e.g., "100G generation 1," "100G generation 2," "100G generation 3," and so on. The "designs internally [for these varieties] could be a totally different structure." CW1 stated that AOI's consistent "[g]oal was to get a cheaper product" that they could sell to Amazon or Facebook at a lower cost, or with a higher margin.~~

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~~55. Each variety of transceiver also has to be able to work with the structure and existing equipment of the customers. Thus, for many customers, AOI's products go through a "qualification process." The qualification process usually involves product sampling and reliability testing and collaboration with the product management and engineering teams in the design and manufacturing states. New customers may also audit the manufacturing facilities and perform other evaluations. AOI customers may cancel or modify a design project before the Company has qualified the product or begun manufacturing a qualified product. A successful qualification is known as a "design win." AOI defines a "design win" as "the successful completion of the evaluation stage, where our customer has tested our produce, verified that our product meets substantially all of their requirements and has informed us that they intend to purchase the product from us."~~

~~56.~~1. ~~A key way in which AOI purportedly distinguished itself was in the manufacturing of chips. As Defendant Murry described the process in a March 22, 2017 Investor Session:~~

> ~~So, we start with a wafer, a semiconductor material that basically devoid of active layers or active devices on there. Upon that substrate material, which we buy and other companies presumably buy as well, we do some process called epitaxy. That is we're growing additional layers on top of the substrate materials that actually form the laser itself, or in the case of the receiver, a photodiode.~~
> ~~Those layers, essentially, are where all the action is.~~ ***~~We do that in-house and as we mentioned in the video, we're one of relatively small number of companies that actually has the capability in-house to grow these wafers and to do the rest of the laser manufacturing process. And I think that's the key differentiator because as you may hear at the show, lasers not only define the performance [to date extent] of these modules, but they're also critical to on-time delivery schedule and being able to ramp up as customer demand increases, which of course we're seeing in some of the markets that we're in.~~***

~~57.~~1. ~~Consequently, far from allowing the Company to be nimble in responding to customer demand, the vertical integration model actually stymied AOI's ability to produce transceivers. According to CW1, by the Summer of 2017, the Company was "desperate" to~~

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~~increase the Texas facility's chip production capacity. During the Class Period, the Houston facility had yet to expand their chip coating capacity. The difficulty in switching from one chip to another resulted in delays in manufacturing the necessary volume of chips, which in turn restricted AOI's ability to increase the volume of transceivers assembled in Taiwan.~~

~~58. Furthermore, CW1 believed that the coating on the chips contained in the transceivers had reliability issues, which meant that the transceivers sold to large data center customers, including Amazon, were unreliable and prone to failure within several years.~~

~~59. Throughout the Class Period, the Individual Defendants were aware of these production capacity gaps at the Texas and Taiwan facilities. According to CW1, every Wednesday night (Central Time), the R&D managers and the project managers from Houston would conference with teams in Taiwan (and likely China as well) concerning 40G, 100G and other products. A main topic of discussion was the production capacity and yield at the facilities (and thus they discussed problems with yields for optical modules and transceivers at the facilities, along with other production issues and shortfalls). Jun Zheng, the VP of the R&D department in Houston, would attend these meetings and reported on yields to the CEO before earnings reports were issued. Additionally, Defendant Lin received monthly status reports from all R&D managers during the Class Period.~~

~~D. AOI Had Significant Visibility Into Its Customers' Ordering Patterns And They Knew Demand Was Declining with Its Largest Customer~~

~~Confidential sources, the Defendants' own public statements, and recently released agreements with customers all demonstrate that AOI and the Individual Defendants had a clear view of customers' upcoming demand for transceivers.~~ for 2018 with exact amounts hidden].

~~61.~~62. ~~Confidential Witness~~ ~~Two ("CW2") was a sales executive at AOI from May until October 2017 for both domestic and international customers purchasing AOI's laser chips. According to CW2, the salespeople's job was to manage customer relationships. CW2 was~~

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~~supervised by a deputy salesperson, who in turn worked under a deputy salesperson named Peter Wang. Wang's manager was~~ Fred Chang, the Senior Vice President and North America General Manager, who reported directly to Defendant Lin~~. All deputy salespeople reported to Chang. According to CW2, Chang regularly communicated with Defendant Lin about the status of all of AOI's accounts~~, signed the Facebook Supply Agreement and Master Purchase Agreement on behalf of AOI.

63. ~~CW2 stated that at periodic intervals, including before~~According to analyst Mark Keheller in a May 2018 report, the ~~beginning~~Facebook Supply Agreement called for a minimum purchase commitment of ~~each~~***$125 million in 2018.***

64. The Facebook Supply Agreement has a term of one year~~, AOI's~~ and may also be terminated for cause for, among other reasons, a material breach that is uncured within 30 days after written notice of such breach.

65. Defendant Murry explained this type of contracting on the February 21, 2018 earnings call:

> [A]nd I mentioned earlier and in the 8-K that it is a minimum commitment. ***This is how we operate with some of our other customers*** as well, in the sense that AOI, typically gets a share oftentimes a leading share with our customers. As sort of a minimum commitment, but oftentimes, depending on what competitors can actually produce and ship in a given quarter, we may have opportunities to take additional share.

66. In addition, AOI and Facebook entered into a Master Purchase Agreement, which had no termination date, but which provided for termination: for cause in the event of an uncured material breach by either party; for the shipment of uncorrected "non-conformities" in products shipped to Facebook; for an uncured "Epidemic Defect" of a (redacted) number or percentage of products shipped by AOI to Facebook; and at Facebook's "convenience."

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67. Based on the publicly available information and information provided by the CWs, Amazon had a similar supply agreement. In fact, Defendant Murry stated during the August 3, 2017 earnings call that "we do have a significant amount of committed orders and a good forecast from ***all 3 of our [large data center] customers,***" including Amazon. Thus, the Individual Defendants knew by the start of the Class Period what Amazon's purchase commitments were ~~required~~for both 40G and 100G—prior to the actual drops in sales that AOI eventually disclosed.

~~62.~~~~1.~~ As a result of their forecasting obligations under Amazon and Facebook's supply agreements ~~to provide projections of their requirements for the coming year.~~, Defendants had close visibility into its top customers' demands ~~Customers communicated these projections to sales people via telephone calls or emails.~~

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~~63. CW2 stated that projection data concerning all products sold by AOI was then entered into the SAP system. The SAP data was available companywide to all people at AOI who were authorized to access the account, including the Individual Defendants. CW2 also stated that a file for each customer was maintained by the sales support and accounting teams, containing that customer's supply/purchase contracts, non-disclosure agreements, production changes, purchase orders and invoices. Sales support personnel would notify production managers about the customer's product requirements and their desired timing for delivery.~~

~~64. CW2 attended regular weekly meetings with all salespeople in the Texas office, including those working on the Amazon and Facebook accounts. Wang and Chang attended these meetings. At the meetings, salespeople reported sales numbers, and other developments with all of their accounts, including for Amazon, Facebook, and other large data center customers.~~

~~65. According to CW1, Defendants took a hands-on approach to monitoring customer demand. CW1 stated AOI was truly a company where what the CEO said goes and that most of~~

~~the managers were "yes men," adding that the Defendant Lin "rules with fear." CW2 pointed out that the sales and marketing teams were physically located on the third floor of the Houston building along with senior executive offices.~~

68. ~~Defendants also repeatedly stated throughout the Class Period that – in spite of their disclosures that sales were made pursuant to individual purchase orders and that demand forecasts did not impose a contractual commitment – they knew what their large datacenter customers would be ordering~~, had committed minimum orders, and received projections from them. In fact, Defendants confirmed in their public statements that they had "good visibility" into their customers' needs. For example:

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~~66.1.~~ So there's a couple of questions in there, I guess. The first one is, ***do we have good visibility into our customers? And I think the answer is yes***. I think we continue to see ourselves and I believe our customers see us as a key partner, as they rollout these new technologies. And so as a key and value partner for them, I think ***they're giving us the best visibility*** that they possibly can into their future needs. So I think we have good very visibility there across all of our major customers, including the new ones. … but overall the customers are basically purchasing what they led us to expect that they would purchase. And we feel comfortable with their plans for the future in terms of our capacity and our ability to meet their needs. ~~For example:~~

- ~~So there's a couple of questions in there, I guess. The first one is, ***do we have good visibility into our customers? And I think the answer is yes***. I think we continue to see ourselves and I believe our customers see us as a key partner, as they rollout these new technologies. And so as a key and value partner for them, I think ***they're giving us the best visibility*** that they possibly can into their future needs. So I think we have good very visibility there across all of our major customers, including the new ones. … but overall the customers are basically purchasing what they led us to expect that they would purchase. And we feel comfortable with their plans for the future in terms of our capacity and our ability to meet their needs.~~

(February 23, 2017 Conference Call, Defendant Murry)

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- ~~While ***our customers may provide us with their demand forecasts***, they are typically not contractually committed to buy any quantity of products beyond firm purchase orders.~~
  ~~(2017 Form 10-K)~~

- ***Based on current orders and forecasts from our customers***, we believe that 2017 datacenter revenue should grow by more than 85% compared with 2016 and would include contributions from 3 hyperscale datacenter customers, each of whom will represent more than 10% of our annual revenue.
  (May 4, 2017 Conference Call, Defendant Murry)

- As far as our plans for the use of those devices, right now, we're using every device that we can make in our internal production, basically. And ***given the forecast that we see from the customers***, I don't see that situation changing. . . .
  (May 4, 2017 Conference Call, Defendant Murry)

- We expect to see strong growth from 2 out of the 3 large datacenter customers that we have and ***a resumption of growth from our largest customer.*** In addition to that -- you asked whether these are committed orders. There are some committed orders out there, not all of that expectation is committed at this point. ***But we do have a significant amount of committed orders and a good forecast from all 3 of our customers.***
  (August 3, 2017 Conference Call, Defendant Murry)

- ~~No.~~ Yes, so we don't really give that far out. It's still relatively early in the year. As we've ~~said~~mentioned, we've seen - we're looking at a pretty good second half. ***A lot of that is based on orders that we have committed, which is unusual for*** ~~years~~***us to have that many committed orders in this early in the year***. But there's still a lot of work to do before we can confidently project what we're going to be for the whole year.
  (May 8, 2018 Conference Call, Defendant Murry)

- No, I ~~mean, the pricing negotiations that we have with~~ don't think our outlook has changed much from a quarter-ago. ***I think, the fact that we have a large portion of our business that's coming from, I would say, secure - more secured contracts, we've had in the past makes our visibility a little bit better typically.*** And so I think, nothing has changed really in our outlook from before.
  (July 19, 2018 Conference Call, Defendant Murry)

69. Confidential Witness One ("CW1"), a sales executive in AOI'S Texas facility from May until October 2017 for both domestic and international customers purchasing AOI's laser chips who was responsible for managing customer relationships confirmed that at periodic intervals, including before the beginning of each year, AOI's customers, including Amazon and

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Facebook, were required under supply agreements to provide projections of their requirements for the coming year.[7] Customers communicated these projections to sales people via telephone calls or emails.

70. ~~are on an ongoing basis and~~ CW1 stated that projection data concerning all products sold by AOI was then entered into the SAP system. The SAP data was available Companywide to all people at AOI who were authorized to access the customer accounts, including the Individual Defendants. CW1 also stated that a file for each customer was maintained by the sales support and accounting teams, containing that customer's supply/purchase contracts, non-disclosure agreements, production changes, purchase orders and invoices. Sales support personnel would notify production managers about the customer's product requirements and their desired timing for delivery.

71. In addition, CW1 attended regular weekly meetings with all salespeople in the Texas office, including those working on the Amazon and Facebook accounts that were also attended by Wang and Chang. At the meetings, salespeople reported sales numbers, and other developments with their accounts, including for Amazon and Facebook.

72. CW1 stated that after the weekly sales meetings, Chang apprised Defendant Lin about the status of all of AOI's accounts.

73. Accordingly, the Individual Defendants were aware of Amazon's and Facebook's demand at all relevant times hereto, including declining demand during the Class Period (discussed below) and well before they disclosed it to investors.

[7] CW1 was supervised by a deputy salesperson, who in turn worked under a deputy salesperson named Peter Wang ("Wang"). Wang's manager was Fred Chang ("Chang"). All deputy salespeople reported to Chang. Defendant Murry introduced Mr. Chang during a March 2018 Investor Session at OFC as "our general manager for U.S. operations, basically our chief operating officer if you will for our U.S. operations."

D. Throughout the Class Period, AOI Touted That It Held a Dominant Technological and Manufacturing Position in Cutting-Edge 100G Optical Transceivers When, in Fact, Due to Capacity Constraints and Quality Issues, AOI Was Rapidly Losing 100G Market Share

74. Throughout the Class Period, AOI falsely represented that, due to this supposed vertical integration, it was better equipped than its competitors to satisfy customers' shifting demands from 40G to 100G transceivers. As it stated during a February 23, 2017 (the first day of the Class Period) earnings call:

> **Our ability to internally manufacture lasers and light engines combined with our ability to quickly transition production between 40G and 100G products provides us with cost-leadership advantages, a faster time to market and the ability to quickly scale and adjust our throughput to meet growing demand.**

75. During the February 23, 2017 call, Defendant Murry further stated that AOI "expect[ed] to maintain [its] leadership position as [it] continue[d] the transition to 100G" and that "the similarity between 100G and 40G modules really ***gives us an advantage in terms of being able to ramp that up quickly***." Murry also commented that AOI did not see the anticipated decline in 40G sales as "problematic because we can transition our manufacturing from 40G to 100G and it just gives us additional capacity on the 100G product. So I will say also that we don't really expect a sharp decline in 40G."

76. Another key way in which AOI purportedly distinguished itself was in its in-house manufacturing of laser chips within the vertical integration module. As Defendant Murry described the process in a March 22, 2017 Investor Session:

> So, we start with a wafer, a semiconductor material that basically devoid of active layers or active devices on there. Upon that substrate material, which we buy and other companies presumably buy as well, we do some process called epitaxy. That is we're growing additional layers on top of the substrate materials that actually form the laser itself, or in the case of the receiver, a photodiode.
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> Those layers, essentially, are where all the action is. **We do that in-house and as we mentioned in the video, we're one of relatively small number of companies**

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> **that actually has the capability in-house to grow these wafers and to do the rest of the laser manufacturing process. And I think that's the key differentiator because as you may hear at the show, lasers not only define the performance [to date extent] of these modules, but they're also critical to on-time delivery schedule and being able to ramp up as customer demand increases, which of course we're seeing in some of the markets that we're in.**

77. While Defendants publicly represented that AOI could make a seamless transition from one speed of transceiver to another, behind the scenes, the Company had supply chain issues, quality control issues and serious latent defects with its 25G laser chips, causing AOI to scramble to accommodate large-scale production of 100G transceivers to meet its increasingly demanding customers.

1. AOI's Production Yield on 100G Transceivers Was Abysmal During 2017

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78. Confidential Witness 2 ("CW2") was employed at AOI in the Sugar Land, Texas facility as an engineer involved with optical module and transceiver development, as well as manufacturing and procurement (i.e., procuring components that AOI did not manufacture itself at volume prices for the transceivers). ~~occur no particularly defined time~~CW2 worked for AOI for several years prior to the Class Period, leaving the Company approximately half-way through it.

79. During CW2's employment at AOI, CW2 attended meetings every Wednesday at 4:30 pm Central Time with all R&D managers at AOI's Texas facility. CW2 stated that yields for the 100G transceivers were discussed at these weekly meetings and a frequent topic of discussion was "yield issues in Taiwan," where the transceivers were assembled. CW2 explained that at AOI, each individual chip was supposed to be tested at each stage of the transceiver assembly process to determine if the device is functioning properly, and the portion that is found to do so is called the "yield."

80. According to CW2, management was constantly looking at all the yield numbers, and anything below 90% for a high-profile customer like Facebook or Amazon (who demanded

low prices for their transceivers and thus tightened AOI's margins on sales to them) would definitely get management's attention. This is because yield is directly correlated with profitability and, thus, maintaining an acceptable level of yield is essential for chip manufacturers like AOI. As a May 18, 2018 report by McKinsey & Co. explained, "Yield optimization has long been regarded as one of the most critical, yet difficult to attain goals—thus a competitive advantage in semiconductor operations." Thus, yield is one of the most closely guarded secrets in the semiconductor industry. As semiconductors get more complex, "the risks to yield due to process variability and contaminations are ever increasing, as is the importance of continuously improving design and machine capabilities." Thus, the higher the yield, the more functional chips are produced and the higher a company's profitability and margins.

81. Attaining a sufficiently high yield for a new semiconductor chip, according to CW2, is a difficult proposition, but a critical one for AOI, which sought to maintain high margins in a competitive industry. Such a high yield rate was essential for maintaining the profit margins that supposedly made AOI competitive compared to other transceiver manufacturers, but the process of generating such results, according to CW2, takes long periods of sustained effort: "[w]hen you just start a new product, you can't get 90% yield immediately."

82. Efforts to achieve sufficiently high yields were made by AOI employees around the world, and up and down the corporate ladder. According to CW2, who personally spoke to Jason Chien, the director of the Taiwan factory in charge of transceiver production, during CW2's on-site visit to the Taiwan facility in mid-2017, Chien had to report directly to Defendant Lin on yields every couple of weeks throughout the ~~year. That is, they occur randomly~~Class Period either by video call, phone call or in-person.

83. CW2 stated that (contrary to Defendants' public assertions) it was difficult to achieve high production yields during the early months of manufacturing a new product. When making a new transceiver, AOI employees in Texas (overseen during the Class Period by Jun Zheng, the VP of the R&D Department in Texas) first design the product, develop a manufacturing process for it, and produce small quantities of transceivers. The Texas facility then passes the transceiver's design and process on to the Taiwan facility for mass production. If production yields were below AOI's 90% threshold, Defendants would send engineers from the Sugar Land facility to Taiwan to fix the problem.

84. For example, when AOI was having trouble with yields for its 40G transceivers before the Class Period, in 2015 and 2016, the Company was compelled to send an engineer from the Sugar Land facility to Taiwan to increase yields for completed transceivers to the Company goal of 90% from the then abysmal 40%.

85. Similarly, according to CW2, when AOI began production of the 100G transceiver in 2015, the production yield was only 40%. Thus, AOI was, again, forced to send engineers from the Sugar Land to Taiwan factory in 2017 to fix the problem. CW2 stated that yields for the 100G transceivers did not increase to acceptable levels of 80% to 90% until late 2017. CW2 knows this from attending the weekly R&D meetings and from discussions with Chien during CW2's July 2017 visit, when Chien told CW2 that yields were low and considered a big issue that required meetings often among management and many other people at the Company.

86. According to CW2, Defendants were aware of the yield, production delay, and quality issues with the 25G laser chips discussed at the R&D meetings from Lin's special assistant, Chan Chih (David) Chen, who attended the weekly meetings and promptly reported back to Lin throughout the ~~year whenever it's appropriate. But~~ ***~~these price negotiations that we have~~***

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~~***undergone are something that we do in advance with the customer, and we know what those prices are expected to be on a go forward basis***~~Class Period. Before each earnings call during the Class Period, Jun Zheng, the VP of the R&D Department in Texas, reported directly to Defendant Lin on the specific yield numbers for AOI's products, including the 100G transceivers. Jun Zheng had five managers reporting to him, including three at the Sugar Land facility.

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2. AOI's 25G Laser Chips Had Latent Defects Relating to the Chip Coating Throughout the Class Period

87. CW2 further explained that the process of transitioning from manufacturing chips for 40G transceivers to those for 100G transceivers was not a simple one because to increase the speed of a transceiver, AOI could not merely swap out one set of chips for another. Rather, it first needed to update the capabilities of the Texas facility where it manufactured transceiver chips. The 100G transceivers purchased by Facebook and Amazon require four 25G chips, while the 40G transceiver requires four 10G chips. According to CW2, the higher the speed, the more difficult it is to manufacture the chip.

88. According to CW2, by the summer of 2017, the Company was "desperate" to increase the Texas facility's chip production capacity by creating a new tooling or fixture to allow the Sugar Land facility to coat more chips at the same time. At least midway through the Class Period, the Sugar Land facility had yet to expand its chip coating capacity.

89. Thus, according to CW2, the main capacity constraints were on the chip production side. The difficulty in switching from one chip to another resulted in delays in manufacturing the necessary volume of chips, which in turn restricted AOI's ability to increase the volume of transceivers assembled in Taiwan.

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~~(August 3, 2017, Defendant Murry)~~

- ~~Other customers are also reducing their 40 gig. As you would expect, as they transition to 100 gig. We've known about that and we've expected it, as I mentioned on the last answer. So the only surprise this quarter is the extent to which one customer is decreasing their forecast or the speed at which they're decreasing their forecast for 40G. That's the only unexpected thing that's come about. The rest of it is known.~~
~~(August 3, 2017, Defendant Murry)~~

~~67. A recently released agreement with Facebook illustrates AOI's contracting practices with its largest datacenter customers and confirms the CWs' descriptions of the forecasting process. Defendant Murry also explained this type of contracting on the February 21, 2018 earnings call: "And I mentioned earlier and in the 8-K that it is a minimum commitment. This is how we operate with some of our other customers as well in the sense that AOI typically gets a share oftentimes a leading share with our customers as sort of a minimum commitment. But oftentimes, depending on what competitors can actually produce and ship in a given quarter, we may have opportunities to take additional share." The Facebook Supply Agreement for 2018 provides for specific minimum purchase commitments and requires that Facebook provide "accurate 6 month rolling forecasts to AOI, identifying . . . needs and delivery expectations on calendar quarter basis." For calendar years 2019 and 2020, Facebook will provide "demand forecasts for the subsequent year. . . in [the] third calendar quarter of the current" calendar year and "the parties will finalize the actual CY 2019 support and purchase commitment by *****." Furthermore, "Facebook will purchase the balance of committed demand at the end of each respective quarter at the unit price agreed for the shortfall quarter pursuant to the table in Table 2 [table of negotiated quarterly price for the product for 2018 with exact amounts hidden]." Fred Chang signed the Facebook Supply Agreement and Master Purchase Agreement on behalf of AOI.~~

~~68. Based on the publicly available information and information provided by the CWs, it can be inferred that Amazon had a similar agreement. In fact, Defendant Murry stated during the August 3, 2017 earnings call that "we do have a significant amount of committed orders and a good forecast from all 3 of our [large data center] customers." Thus, the Individual Defendants knew by the start of the Class Period what Amazon's purchase commitments were for both 40G and 100G – prior to the actual drops in sales that AOI eventually disclosed.~~

~~**E. AOI Knew But Failed to Disclose Problems With Its Corporate Organization and Manufacturing Processes**~~

90. Furthermore, CW2 learned that, both before and after CW2 left AOI, the coating on the 25G laser chips contained in the Facebook and Amazon 100G transceivers had reliability issues, which meant that the transceivers sold to large data center customers, including Amazon and Facebook, were intended to have a long lifespan, but in fact were prone to failure within two years, and that "if they fail in two years that's a problem."

91. According to CW2, in 2017, a former chip design engineer (referred to here as CW3) identified problems with the design and/or coating of the 25G laser chips, which CW3 described to CW2 as a "ticking time bomb" that would inevitably lead to the failure of 100G transceivers containing those chips. CW3 brought those problems to the attention of management. However, management refused to make any changes to the chip design or production. Because CW3 did not want to be associated with 100G transceivers containing known latent defects, CW3 resigned from AOI in December 2017.

92. CW2 recalled that 100G transceivers containing defective 25G laser chips were being sent to Amazon as early as December 2016.

93. CW2 further learned from CW3 that the 100G transceivers shipped out to Facebook in 2017 had reliability issues and had started to fail by no later than the second quarter of 2018,

when AOI admittedly had to conduct additional substantial testing on the chips before shipment, at Facebook's request. CW3 learned of the failures from friends who work at Facebook and informed CW2 of the transceiver reliability problems there.

Consequently, far from allowing the Company to be nimble in responding to customer demand, the vertical integration model stymied

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~~69. Despite representing to investors that AOI was uniquely positioned to maintain production of 40G transceivers while transitioning to 100G, insiders reported incidents that shows that AOI's growth and transition were accompanied by serious issues with corporate operations and manufacturing quality control, which caused customers like Amazon to look elsewhere to fill their demand.~~

~~70. As an initial matter, senior executives at AOI were constantly monitoring all aspects of the Company's operations. According to CW1, many of the managers are "yes men" and "the CEO [Lin] rules with fear," and "would react pretty big to even the littlest problems," such that even "small problem would be blown out of proportion."~~

~~71. CW1 stated that senior management knew that the quality control department at the Houston manufacturing facility lacked the skills necessary to conduct quality assurance testing and RMA (return material authorization) troubleshooting for the transceivers sent back from the customers. Consequently, senior management delegated the responsibility of testing transceivers to research and development engineers themselves. Fellow R&D engineers stated to CW1 that they were underequipped to do the job of both their normal work and the quality assurance, which was outside their job description.~~

94. ~~In addition,~~ AOI's ability to produce transceivers.

3. AOI Lacked the Necessary Quality Controls to Ensure Its 100G Transceivers Were Working Properly

95. Defendants were also aware that AOI lacked the necessary quality control to ensure its 100G transceivers were working. CW2 explained that AOI's hyperscale data center customers require ~~that~~ AOI to provide ~~for~~ quality assurance testing on large samples of the transceivers that are manufactured in Taiwan. The samples are either manufactured and tested in Taiwan, then sent to the data center customer, or they are tested in Taiwan, then tested in ~~Houston~~Sugar Land, then sent to the data center customer. ~~CW1~~

96. However, according to CW2, senior management, including the Individual Defendants, knew the quality control department at the Sugar Land manufacturing facility lacked the skills necessary to conduct quality assurance testing and RMA (return material authorization) troubleshooting for the transceivers sent back from the customers. Consequently, Defendants delegated the responsibility of testing transceivers to research and development engineers themselves. Fellow R&D engineers stated to CW2 that they were underequipped to do the job of both their normal work and the quality assurance, which was outside their job description.

~~72.~~97. As a result of AOI's lack of skill, experience, and resources to conduct proper testing and quality control, CW2 recalled an incident ~~during the Class Period~~between March and June 2017 when AOI's Taiwan facility actually sent a defective set of test transceivers to Amazon, which required high numbers of test devices for their quality assurance process. The customer tested the transceivers, the performance results were unfavorable, and the R&D transceiver group in ~~Houston~~Sugar Land was reprimanded. According to ~~CW1~~CW2, "You want to send Amazon your best quality products." But this time, "'[s]omething happened resulting in inferior parts being selected and then shipped, or the specs may have drifted out of target due to poor or rushed assembly." CW2 recalled that, at the 4:30 pm Wednesday meetings he attended, reports were

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presented concerning Amazon's complaints that sample transceivers provided by AOI which were not functioning properly and were not passing Amazon's internal qualification process.

~~F. Defendants Had Advance Knowledge of Looming Issues Concerning Future Demand From Its Biggest Customers, But Failed to Disclose the Issues to Investors~~

E. Amazon and Facebook Reduce Their Orders of 100G Transceivers From AOI As They Turn to Other Sources for Future Demand Due to Defective 100G Transceivers and AOI's Inability to Meet Their Demand

98. While the Company was struggling to meet customer demand ~~while maintaining low margins~~as a result of product quality and yield issues, AOI knew that ~~its~~ customers ~~were looking elsewhere for~~ had begun purchasing 100G transceivers~~.~~ elsewhere. Contrary to the market's expectation—repeatedly encouraged by Defendants—that AOI's vertical integration strategy positioned the Company to easily transition from 40G to 100G manufacturing and sales, AOI was failing to generate adequate yields to satisfy demand and was shipping defective transceivers to its customers. As a consequence of these vertical integration failures, AOI misrepresented its ability to transition its sales from 40G to 100G transceivers.

1. Amazon Lowers Forecasts at the Start of the Class Period and Seeks 100G Transceiver Parts From MACOM and Fabrinet

~~73.~~99. By May 2017, if not earlier, it was ~~(or should have been)~~ clear to Defendants (or they recklessly disregarded the fact) that large datacenter customers, particularly Amazon, were pursuing alternatives to AOI's optical transceivers, including through the so-called "merchant model," i.e., end-users directing the custom assembly of transceivers using parts from a variety of suppliers.

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~~74.~~100. A leader in the merchant model of transceiver production is MACOM Technology Solutions Holdings Inc. ("MACOM"), a semiconductor manufacturer that provides large cloud data centers with lasers, silicon ~~phonotonics~~photonics, and optical subassemblies.

During MACOM's April 25, 2017 earnings call, the company stated: "We're now being sponsored actively pulled by top cloud data center customers to provide various solutions through various customers and channels to fulfill what we expect will be insatiable demand. . . ." On May 16, 2017, at the Cloud Data Center Forum, MACOM discussed the emerging trend of large datacenters purchasing optical transceiver parts~~, or~~ using the "merchant model" where the datacenter client purchases from MACOM and can direct where the component goes—whether to another manufacturer in the chain of production (like AOI) or directly to the datacenter itself. The optical industry is supply constrained and most of the large datacenters are "professional supply chain managers." Thus, with the "merchant model" the large datacenters use their supply chain expertise to "~~evalut~~evaluat[e] and stickhandl[e] technology providers . . ."

~~75.~~101. AOI was ~~clearly~~ aware of this "merchant model" and MACOM's increasing business with hyperscale data centers, including Amazon. Indeed, Defendant Murry specifically addressed this issue during a May 4, 2017 conference call. During that call, he contended that "economically, [the merchant model] ~~does not~~doesn't make sense" because the layers of complexity and additional profit margins associated with having multiple companies manufacture these datacenter products would not "result[] in a product that's less expensive for the end customer than buying it from AOI even at the profit margins or gross profit levels that we're at today." Defendant Lin added that the companies engaged in the merchant model would have "gross margin[s] [that] will be very low compared to AOI's" because the gross margin AOI obtained would have to be "divide[d] [] by 3 companies . . . selling laser, doing types of manufacture, selling transceiver or selling chips."

~~76.~~102. On June 26, 2017, Needham & Co. analyst Alex Henderson reported that Fabrinet had won a project to provide Amazon with 100G ~~CWDM 4~~CWDM4 optical modules

"based on Macom components," with production of the 100G multiplexers expected to accelerate in July 2017.[8] More specifically, Amazon partnered with Fabrinet to produce 100G ~~CWDM-4~~CWDM4 optical transceivers for itself. Using the merchant model described herein, MACOM's components are being used by Amazon and placed in systems supplied by Fabrinet. Essentially, as a result of~~,~~ AOI's inability to meet demand due to product quality and other issues, Amazon has been piecing together its own 100G transceivers using components from MACOM and Fabrinet. MACOM's datacenter revenues show the fruits of this alliance, growing 107% year-over-year from the company's quarter-ended December 30, 2016 to December 29, 2017.

103. Amazon's reduced forecasts, according to CW1, were recorded in the SAP system to which the Individual Defendants had access.

~~77.~~104. Nevertheless, on July 13, 2017, AOI issued a press release announcing preliminary second quarter 2017 earnings that did not address the changed competitive landscape ~~or~~, the known expected decline in sales to Amazon~~.~~, or the manufacturing defects plaguing AOI's laser chips. Defendant Lin ~~stated: "I'm pleased to announce that we expect to deliver another record quarter with our top and bottom-line results expected to exceed our~~ attributed AOI's above-guidance~~" and attributing the~~ results to "improvement[s] in our manufacturing costs, capacity expansion and solid execution by our production team~~." When comparing this to the Company's previous earnings announcements, notably missing was any forward-looking commentary or any commentary that the business would continue to remain strong.~~:"

> "I'm pleased to announce that we expect to deliver another record quarter with our top and bottom-line results expected to exceed our guidance, said Dr. Thompson Lin, Applied Optoelectronics, Inc., founder, president and CEO. "Again, this quarter, our results were driven by improvement in our manufacturing costs, capacity expansion and solid execution by our production team. We are pleased

[8] ~~https://www.barrons.com/articles/an-existential-threat-to-fiberoptics-makers-1500695405; http://www.markets.co/needham-believes-ma-com-technology-nasdaq-mtsi-wont-stop-here/~~

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with our performance and look forward to sharing the additional details of our second quarter results on our conference call in August."

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~~**G. The Truth Begins to Be Revealed**~~

~~78. On August 3, 2017, during the Company's second quarter 2017 earnings call, AOI was forced to reveal that "a large datacenter customer" – known to be Amazon – had decreased its demand for the 40G products going into the third quarter of 2017. While AOI contended that the weakening demand was "a recent development" occurring "post [] pre-announcement," according to CW2 and Defendants themselves, the Company had advance knowledge of Amazon's minimum purchase obligations and its forecasted transceiver requirements.~~

~~79. Nevertheless, AOI continued to make deceptive statements during the earnings call. It stated that 100G demand with Amazon was on track: "We continue to expect to have 3 hyperscale customers, each represent more than 10% of our revenue for the full year 2017. . . ." Defendants also stated that "we have meaningful 100 gig revenue with our largest customer as well as our other customers."~~

~~80. AOI dismissed the effects on its business of decreased Amazon demand or the MACOM–Fabrinet partnership. Defendant Murry stated:~~

> ~~. . . [F]irst of all, we don't believe that the MACOM-Fabrinet alliance is actually producing anything or is likely to produce any products or any meaningful quantities, certainly, in the next quarter or 2, probably longer than that. In addition to that, in the long term, and in the short term, we don't see any cost advantage to this model. AOI, as we mentioned, is currently very highly vertical integrated on the most expensive components, meaning the lasers. As we announced in the call, we also intend to produce other optical components that we currently don't produce internally, which will further enhance the extent of our vertical integration, and we think this gives us a significant cost even against the MACOM-Fabrinet business model or any of the other competitive business models that we're aware of.~~

~~81. On the news of the dramatic decline in Amazon's demand for 40G transceivers, the Company's share price fell over 34%.~~

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~~H. Facing the Unpalatable Reality of Permanent Market Changes, AOI Conceals the True Effect of the Drop in Amazon Purchases~~

105. As discussed below, just two weeks later, AOI would abandon its future guidance due to purported lower demand from Amazon for the 100G transceiver as the truth slowly leaked to the market over a series of partial disclosures.

2. Facebook Follows Suit and Seeks to Fill its 100G Demand from Other Sources As a Result of AOI's Defective and Unreliable Transceivers

106. During ~~an investor conference on August 15~~the remainder of the Class Period, AOI continued to vaunt the merits of its proprietary manufacturing technology and vertically integrated processes as the driver of future sales to hyperscale data center customers. Nevertheless, AOI continued to sell 100G transceivers containing defective 25G laser chips to those customers.

107. At a November 5, 2017 Needham Networking & Security Conference ("the November 2017 Conference"), Defendant Murry disclosed that (after the loss of a significant part of Amazon's business) AOI was now being forced to "diversify[] our customer base" and had "40 active qualifications ongoing right now for 100-gig and 200-gig products."

108. Starting in May 2018, subtle signs of Facebook's dissatisfaction were beginning to emerge. On May 8, 2018, Defendants ~~uncharacteristically refused to discuss the Company's relationships with its~~ reported in AOI's Form 10-Q for the period-ending March 31, 2018 that sales to another large data center ~~customers and indicated that AOI expected an increase in "unit" sales~~customer had decreased demand for both 40G and 100G transceivers:

> During the three months ended March 31, 2018, revenues in the internet data center market decreased by $29.0 million. **This decrease was driven primarily by decreasing demand for our 40 Gbps and 100 Gbps transceivers as one of our customers reduced its demand for optical transceivers due to changes in the way they architect their network.**

109. By August 3, 2018, an analyst at Craig-Hallum expressed concern that AOI would not meet its 2H 2018 projections because Intel would "likely [] gain a leading share (~50%) of [Facebook's] 100G CWDM4-OCP volumes" and stated that an AOI competitor was "also likely a meaningful supplier." The analyst also stated his expectation that AOI's 40G business, which represented 53% of 1Q 2018 data center revenues and which the analyst believed was driven by Microsoft, "could decline materially by year's end."

110. Defendants remained coy about looming problems with product failures at Facebook, now AOI's biggest customer. On August 7, 2018, Defendant Murry alluded to problems with the quality of transceivers being sent to AOI's customers, stating that unidentified "certain customers" were now requiring AOI to take additional testing steps before shipping transceivers:

> ***We are also adding additional testing steps that are required by certain customers***. In the short-term, these additional steps will constrain our manufacturing throughput somewhat, but ~~not an increase in "~~we expect to once again have sufficient capacity to meet demand in Q4 of this year. As Thompson mentioned, our proprietary optical platform is also a key factor and optimizing the cost structure of our datacenter transceivers.
>
> * * *
>
> It applies the multiple SKUs and it applies the multiple customers. It's data that we need to take to get a large enough sample size for some of the statistical analysis that we need to do for certain customers, including some existing and new customers, so we're doing that across the board.

111. During the August 2018 Call, Defendant Murry admitted that the additional required testing was necessary to obtain new customers and would "add a few days to our manufacturing." Thus, the vertical integration model would not allow for a quick transition as previously represented and AOI would be unable to meet customer demand:

> Yes, so we were saying in the prepared remarks, is that ***we are implementing some additional testing procedures as we continue to diversify our customer base***. Different customers have different requirements in terms of what they expect to see relative to design testing and so on and so forth. So we're undertaking some additional testing steps in the manufacturing. ***So will -- what it does is it adds a few days to our manufacturing throughput, it takes a little bit longer to manufacture***

> ***the transceivers,*** it doesn't -- it's not going to meaningfully impact of the cost of the modules. But it will link them the time that it takes them to manufacture them***. So in this quarter, we expect that to constrain our production. In other words, there will be more demand than we can supply in this quarter***, but as we said in our prepared remarks, by the fourth quarter -- early in the fourth quarter, we expect that to be normalize. [. . .] It applies to multiple SKUs and it applies to multiple customers. ***It's data that we need to take to get a large enough sample size for some of the statistical analysis that we need to do for certain customers, including some existing and new customers***, so we're doing that across-the-board.

112. Defendant Murry did not disclose, however, that this customer was Facebook and that the impetus for the further testing was AOI's delivery of 100G transceivers containing defective 25G laser chips.

113. Similarly, the Second Quarter Form 10-Q filed with the SEC on August 8, 2018 for the period-ending June 30, 2018 revealed a continuing decrease in demand for 40G and 100G transceivers:

> The decrease in revenue~~."~~ during the three months ended June 30, 2018 was driven primarily by decreased demand for our 40 Gbps and 100 Gbps transceivers as one of our customers reduced its demand for optical transceivers due to changes in the way they architect their network.

~~**I. The Truth Is Revealed**~~

~~83. Among the many material facts Defendants had been concealing from investors was that Amazon had lowered its demand for ***both 40G and 100G***. This reality was revealed in part in the preliminary third quarter 2017 earnings announcement on October 12, 2017. During the conference call after market close that day, Defendant Murry stated that the Company "saw lower demand ***overall*** from one of our large customers." On this news, AOI's share price fell over 20%.~~

~~84. Defendant Murry revealed that revenue fell short of AOI's previous guidance for the third quarter of 2017 by approximately $18 million, or 20%, due specifically to lower demand from "a large datacenter customer." While AOI had partially disclosed that this customer,~~

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~~Amazon, would be reducing its purchases of 40G products during the August 3, 2017 earnings call, AOI was now forced to reveal that Amazon was purchasing very little of any type of the Company's products. Revenue from Amazon had in fact dropped from 47% of total revenue during the second quarter of 2017 to ***a mere 10%*** during the third quarter of 2017.~~

~~85. Furthermore, contrary to Defendants' consistent claims throughout the Class Period that they had visibility into future demand through customer forecasts, AOI stated for the first time that there was purportedly "weakness" in its ability to forecast and that "visibility [was] difficult."~~

~~86. But, Defendants once again failed to disclose the true reasons behind Amazon's decreasing demand, stating that "we don't believe that this disruption in the order flow is related to anything AOI specific. It's related to an ongoing transition from 40G to 100G." On the final financial results earnings call on November 7, 2017, Defendant Murry reiterated this false reasoning:~~

> ~~We continue to have ongoing discussions with this customer and based on those conversations, **we believe the disruption in order flow is related to the ongoing transition from 40G to 100G and not specific to AOI.** We believe there was some inventory build-up during the transition and based on conversations with this customer, we believe that inventory conditions will normalize within the first half of next year.~~

~~87. One analyst directly questioned the explanations given for the 100G decrease by Amazon, to which Defendant Murry side-stepped responding to and added in follow-up that "we remain a major supplier to all of our major customers for their long-reach transceiver needs and intra-datacenter applications. And I'll kind of leave it at that as far as customer positioning":~~

> ~~**Simon Matthew Leopold** - Raymond James & Associates, Inc., Research Division - Research Analyst~~
> ~~Great. That's very helpful. Pleased to hear that. The other thing is -- and I'm assuming I've entered formulas correctly, so apology if I botch this. But I think the~~

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~~100 gig business was down sequentially. So given that the primary explanation is a pause of 40 to 100 gig, I would have imagined you'd sell every piece of 100-gig gear. So maybe help us understand if: one, I did the math correctly; and two, if so, why would 100 gig be down in your third quarter.~~

~~**Stefan J. Murry** - Applied Optoelectronics, Inc. - CFO and Chief Strategy Officer~~
~~Well, I think we saw an overall decline -- as we mentioned in our prepared remarks, we saw an overall decline in business from one customer. So that included both 40 gig and 100 gig. On the other hand, the other customers that we had, were actually up for 100 gig, so that didn't quite balance out the overall decline from the one customer.~~

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~~88. During AOI's fourth quarter 2017 earnings results call on February 21, 2018, the staggering effect of Amazon's 100G purchasing withdrawal was exposed to investors with reported 100G sales dropping from 56% of data center revenues during the third quarter to 35% during the fourth quarter of 2017. When questioned by analysts about the "skew . . . in favor of 40 gig," Defendant Murry admitted "[i]t's largely customer specific." And instead of pointing to the 40G to 100G transition as the reason behind shifting demands, when asked whether there was "any particular seasonality that drives the sequential weakness in the fourth quarter," Defendant Murry responded, "I can't really comment on the specific customers and their trends. But I think, it's not reasonable to expect that, in any given quarter, there can be a lot of things that affect a particular customer's purchasing patterns, timing of orders, specific things that they're doing within their datacenters, what type of products they're deploying to mix."~~

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~~89. The chart below shows an uptick in 100G transceiver sales compared to 40G transceiver sales as Amazon begins demanding fewer 40G transceivers, and then the shocking reversal of 100G transceiver sales from the third quarter of 2017 to the fourth quarter of 2017 as Amazon's demand for all AOI transceivers dwindles.~~

~~Quarter~~	~~40G % of Datacenter Revenues~~	~~100G % of Datacenter Revenues~~	~~Total Datacenter Revenues ($m)~~
~~4Q16~~	~~74%~~	~~20%~~	~~$68.1~~

~~1Q17~~	~~62%~~	~~30%~~	~~$79.6~~
~~2Q17~~	~~57%~~	~~39%~~	~~$99.3~~
~~3Q17~~	~~41%~~	~~56%~~	~~$65.8~~
~~4Q17~~	~~58%~~	~~35%~~	~~$62~~

~~On this news, AOI's shares fell $7.04 from a close of $34.55 on February 21, 2018 to a close of $27.51 on February 22, 2018.~~

114. Then, at an August 8, 2018 Intel event, Facebook's VP of Infrastructure commented that the social media company was rolling out Intel transceivers at scale.

115. It was only in late September 2018 that investors began to learn why AOI's relationship with Facebook was crumbling. After conducting industry checks, Loop Capital Markets reported on September 27, 2018 that AAOI was having product quality issues in 100G transceivers that were being sold to Facebook. As AOI was compelled to admit the following day, the problem required the Company to ***suspend all shipments of the product to Facebook***. Although AOI reported the problem as isolated and temporary, a Rosenblatt Securities analyst reported on November 1, 2018 that "AAOI's laser quality issue seems to have returned" and that, as a result, "we believe AAOI will not be able to continue shipping to Facebook."

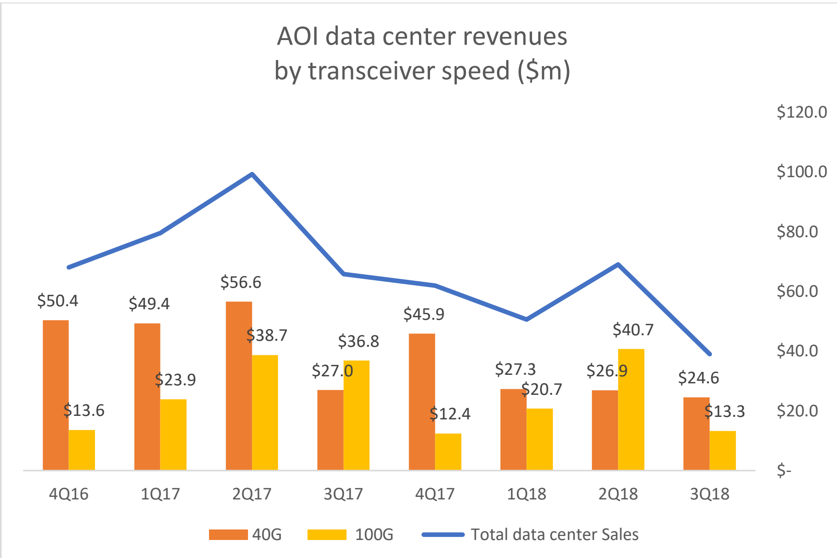
116. Thus, the laser chip manufacturing problems identified by CW2 in early 2017 persisted through at least the third quarter of 2018—and resulted in the successive loss of business from Amazon and then Facebook, AOI's two biggest customers.

3. The Pattern of 40G and 100G Sales During the Class Period Evidences Consistent Failures to Obtain Market Share As a Result of Low Yields and Quality Issues With 100G Transceivers

117. The charts below quantify AOI's failure to obtain or sustain the growth of its 100G transceiver business, due to low yields and quality issues affecting its sales to Amazon and Facebook. AOI's sales of 100G exceeded those of 40G only twice: in Q3 2017, when AOI foresaw (but hid from investors) the loss of significant 40G business from Amazon, such that the anemic

100G business temporarily grew as a percentage of AOI's total revenues; and in Q2 2018, when AOI was knowingly sending large numbers of 100G transceivers with defective 25G lasers to Facebook. As a direct consequence of the failure of those 100G transceivers, AOI's revenues from 100G transceiver sales dropped from approximately $40 million in Q2 2018 to approximately $13.3 million in Q3 2018. Thus, due to the failure of its vertically integrated manufacturing model, and contrary to its statements throughout the Class Period about its ability to capture 100G market share, ***AOI has made less 100G revenue in the third quarter of 2018 than it did in the fourth quarter of 2016.***

AOI DATA CENTER REVENUES BY TRANSCEIVER SPEED ($m)			
Quarter	**40G**	**100G**	**Total**
4Q16	$50.4 (74%)	$13.6 (20%)	$68.1
1Q17	$49.4 (62%)	$23.9 (30%)	$79.6
2Q17	$56.6 (57%)	$38.7 (39%)	$99.3
3Q17	$27.0 (41%)	$36.9 (56%)	$65.8
4Q17	$45.9 (74%)	$12.4 (35%)	$62.0
1Q18	$27.3 (53%)	$20.8 (41%)	$50.6
2Q18	$26.9 (39%)	$40.7 (58%)	$69.0
3Q18	$24.6 (63%)	$13.3 (34%)	$39.0



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V. DEFENDANTS' MATERIALLY FALSE AND MISLEADING STATEMENTS

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118. Throughout the Class Period, Defendants made a variety of misstatements and misleading omissions which can be organized into the following categories: (1) the competitive and technological advantages of vertically integrated manufacturing; (2) the threat of the merchant model; and (3) future customer demand. The specific statements Plaintiff alleges are false and misleading within the quoted language below are bolded and underlined.

A. False and Misleading Statements Concerning the Competitive and Technological Advantages of AOI's Vertically Integrated Manufacturing Platform

~~A.~~1. The February ~~23,~~ 2017 Press Release and Earnings Call

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119. The Class Period begins on February 23, 2017, when AOI issued a press release announcing its fourth quarter and full-year~~-end~~ 2016 financial results (the "February 2017 Press

Release"). ~~The~~[9] On the same day, after market close, the Company held an investor call to discuss the Company's fourth quarter and full year 2016 financial results (the "February 2017 Call").

~~91.~~ In the February 2017 Press Release ~~stated in relevant part:~~

120. ~~AOI achieved another record year driven by strong,~~ Defendant Lin falsely represented to investors that AOI's vertical integration model gave the Company the ability to get to market faster with the 100G transceiver and quickly scale to meet the demand of its largest customers, stating:

> **Our ability to internally manufacture lasers and light engines provides us with cost-leadership advantages, a faster time to market, and the ability to quickly scale to demand.** ~~for our market-leading datacenter products and continued execution by the AOI team. We believe our record performance further demonstrates our growing market share in advanced optics and our team's ability to generate manufacturing efficiencies that lead to margin improvement," said Dr. Thompson Lin, Applied Optoelectronics, Inc, founder, president and CEO. "~~~~**Our ability to internally manufacture lasers and light engines provides us with cost-leadership advantages, a faster time to market, and the ability to quickly scale to demand.**~~ **Looking ahead, as the 100G transition accelerates this year, we see the opportunity to build on our momentum and expand our market leadership**~~."~~.

121. Defendant Murry echoed Lin's statements during the February 2017 Call, stating:

> **Our ability to internally manufacture lasers and light engines combined with our ability to quickly transition production between 40G and 100G products provides us with cost-leadership advantages, a faster time to market and the ability to quickly scale and adjust our throughput to meet growing demand.**
>
> * * *
>
> And I think when you are in a situation where supply of some of those components may be constrained, or the overall industry capacity is not what is needed to meet the demand, **if the company that has the ability to ramp up quickly by virtue of being integrated in their production like we are** that it will do better I think than others. **And honestly I think that that's the situation that we're in right now, and I think we've been able to start to prove out the value of that vertical integration strategy.**

[9] Unless otherwise noted, all press releases referred to in this section were attached as Exhibit 99.1 to a Form 8-K filed by AOI with the SEC on the date of the press release.

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122. The above statements above were materially false and/or misleading ~~because they misrepresented and failed to disclose the following adverse facts pertaining to the Company's business, operations, and prospects, which were known to Defendants or recklessly disregarded by them. Specifically, that: (i) AOI lacked the capacity and capability to transition quickly from 40G to 100G manufacturing and, thus, could not keep up with customer demand; (ii) AOI was~~ when made because:

i. AOI was taking shortcuts in the manufacturing and quality assurance of its 100G transceivers to increase manufacturing yields, lower costs, and maintain high gross margins, ~~causing undisclosed product quality issues and resulting decreased demand from Amazon and other key customers; (iii) AOI was losing market share to increasing competition due to customers adopting the "merchant model"; (iv) Defendants knew that, based on customers' minimum purchase obligations and forecasted requirements, as well as product issues, that demand for AOI's 100G transceivers was not going to grow at the rate Defendants represented; and (v) as a result of the foregoing, the Company's financial statements~~including, at the specific direction of Defendants, designating unqualified and overworked R&D engineers to perform the quality control function.

ii. CW2 stated that, as a result of AOI's lack of quality control, beginning in the first half of 2017 or earlier, AOI was sending its datacenter customers (which included Amazon) 100G transceivers containing 25G laser chips that had faulty chip coatings, and thus were prone to failure (reliability issues).

iii. Defendants received oral and written reports from weekly R&D meetings showing low manufacturing and assembly yields for its 25G chips and 100G transceivers of as low as 40%, well below the 90% that Defendants expected, demonstrating AOI was experiencing significant production shortfalls due to the manufacturing of defective laser ships and thus was unable to meet Amazon's demand requirements.

iv. Chien, who reported yields directly to defendant Lin by video call, phone call or in person every couple of weeks throughout the Class Period, would have informed Defendant Lin that yield in Taiwan through Q3 2017 was as low as 40% and well below the 90% AOI needed to be profitable;

v. Defendants knew from the SAP system and Amazon's contract requirements that Amazon had significantly reduced its demand for 100G transceivers as of the start of the Class Period according to its contractual obligations under a supply agreement that required Amazon to provide AOI with six to twelve-month forecasts.

vi. According to CW2, as AOI was trying to transition from 40G to 100G, AOI lacked sufficient production capacity and was "desperate" to increase the Sugar Land facility's chip production capacity by creating a new tooling or fixture to allow it to coat more chips at the same time and had not done so as of summer 2017.

vii. Defendants effectively admitted on September 28, 2018 AOI had sold to its major datacenter customers defective 100G transceivers containing 25G laser chips that were known to be prone to long-term failure.

123. As a result of (i) to (vii) above, AOI's vertical integration model was faulty and lacked the ability and capacity to transition quickly (if at all) from 40G to 100G manufacturing and thus could not get to market "faster" or quickly scale up to meet customer demand, as represented. Moreover, AOI's faulty vertical integration model did not allow AOI the "ability to internally manufacture lasers and light engines" to "drive further growth as datacenter operators transition to 100G." Because AOI in fact lacked the touted production capacity and was making defective transceivers and transceiver components for the 100G, AOI was not better situated than other transceiver manufacturers who were "constrained" to obtain "supply of some of those components" and AOI could not "ramp up quickly by virtue of being integrated in their production."

124. In touting AOI's vertical integration model, Defendant Murry falsely claimed during the February 2017 Call that the transition between 40G and 100G transceivers would be seamless:

> I think we can't emphasize enough that the light engines, the manufacturing of the subassembly that includes the lasers and the rest of the optical components - - **having our own in-house capability to do that and having a significant**

> **manufacturing infrastructure for that by virtue of the similarity between 100G and 40G modules really gives us an advantage in terms of being able to ramp that up quickly.**

~~92.~~125. The above statement above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above.

~~**B. The**~~During the February ~~**23,**~~ 2017 ~~**Earnings**~~ Call

~~93. On the same day, after market close, the Company held an investor call to discuss the Company's fourth quarter and full year 2017 financial results (the "February 2017 Call"). Defendant Lin commented on AOI's competitive position in the 100G market, stating: "***In 100G we further extended the gap between AOI and the competition.*** Building upon our first-to-market advantage, we increased our 25G chip production by nearly 150% between January and December and expanded our customer footprint by earning a new large scale customer."~~

~~94. During the call~~, Defendant Murry ~~discussed the Company's transition from the 40G market to the 100G market. He stated:~~

> ~~***[W]e believe we have many new opportunities ahead of us to drive further growth as datacenter operators transition to 100G and continue to expand their datacenters and upgrade their infrastructure to handle higher bandwidth needs.***~~
>
> ~~**Our ability to internally manufacture lasers and light engines combined with our ability to quickly transition production between 40G and 100G products provides us with cost-leadership advantages, a faster time to market and the ability to quickly scale and adjust our throughput to meet growing demand.**~~
>
> ~~And lastly, the added capacity from our new fab in Sugar Land ***enables us to expand our avenues to market for 100G. For example, as we demonstrated with 40G, we were able to expand our share and ramp quickly to the demand of our hyper-scale operators.***~~
>
> ~~Based on our analysis, we believe we are now the leading supplier of 40G optics for hyper-scale datacenter operators ***and expect to maintain our leadership position as we continue the transition to 100G.***~~

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~~95. Defendant Murry further asserted that what distinguished AOI from its competitors was its ability, as a vertically integrated company, to manufacture all components of a transceiver "to meet the demand."~~

> ~~And I think when you are in a situation where supply of some of those components may be constrained, or the overall industry capacity is not what is needed to meet the demand, **if the company that has the ability to ramp up quickly by virtue of being integrated in their production like we are** that it will do better I think than others. And honestly I think that that's the situation that we're in right now, and I think we've been able to start to prove out the value of that vertical integration strategy.~~

~~96.~~126. ~~When asked by analyst~~ responded to a question from Troy Jensen of Piper Jaffray about ~~declines~~the decline in demand for 40G transceivers~~, Defendant Murry assured investors that due to the Company's vertical integration model,~~ claiming 100G ~~demand~~sales would make up for ~~lost~~any loss in 40G sales:

> **That decline, really, we don't expect to be problematic because we can transition our manufacturing from 40G to 100G and it just gives us additional capacity on the 100G product**. So I will say also that we don't really expect a sharp decline in 40G.
>
> I think others have maybe speculated that that decline was going to be swift. I think there's a lot of reasons why customers can't transition completely away from 40G in a short timeframe. **So we expect it will be a gradual decline and that 100G will more than make up for that.**

~~97. Defendant Murry also lauded the Company's ability to easily and quickly move from production of 40G products to 100G products:~~

> ~~I think we can't emphasize enough that the light engines, the manufacturing of the subassembly that includes the lasers and the rest of the optical components — ***having our own in-house capability to do that and having a significant manufacturing infrastructure for that by virtue of the similarity between 100G and 40G modules really gives us an advantage in terms of being able to ramp that up quickly.***~~

***

127. The above statement above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above. Moreover, due to the manufacturing and

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product issues with the 25G laser chips, Amazon and other customers would not be transitioning to the 100G transceiver and, instead, Amazon was lowering its 100G forecasts and looking to purchase more 40G transceivers. Thus, AOI would not have "additional capacity on the 100G product" as represented and the 100G would not be able to make up for any loss in 40G sales.

128. During the February 23, 2017 Call, Defendant Murry also stated,

> Well, basically ~~*we're*~~we're using the capacity that we have as we put it online. I think there's two ways of looking at it. ~~There's~~There's capacity in terms of current equipment and manpower and we're constantly adding to that capacity. And so that's kind of a moving target. I think the bigger picture is that we spent, as you know, we spent heavily last year on new building infrastructure, particularly here in Sugar Land but also in our overseas operations as well.
>
> **And that gives us an ability to have the physical infrastructure to put new equipment in to be able to continue that ramp. So on both those counts, I think ~~*we've*~~we've been able to keep up with our customers' demand and actually I think ~~*we've*~~we've been able to gain some incremental advantage over competitors who maybe ~~*didn't*~~didn't have that sort of latent capacity available to help customers when they saw a surge in demand.**

~~98. Defendant Murry also commented on the data center demand and revenues for AOI:~~

> ~~Moving now to Q1. We expect Q1 revenue to be between $87 million and $91 million, representing 73% to 80% year-over-year growth. As we mentioned last quarter, we have fewer production days in Q1 as a result of the Chinese New Year holiday.~~ ~~***However, strong customer demand for datacenter and solid execution by the AOI team will drive higher sequential datacenter revenue.***~~

~~99. In response to Cowen analyst Paul Silverstein's question on "how much visibility" the Company had with its customers on the 100G ramp, Defendant Murry responded:~~

> ~~So there's a couple of questions in there, I guess. The first one is, do we have good visibility into our customers?~~ ~~***And I think the answer is yes. I think we continue to see ourselves and I believe our customers see us as a key partner, as they rollout these new technologies.***~~
>
> ~~And so as a key and value partner for them, I think they're giving us the best visibility that they possibly can into their future needs.~~ ~~***So I think we have good very visibility there across all of our major customers, including the new ones.***~~

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> ~~The other question that you had was related to what Troy was asking about too in terms of the 100G ramp up. What I could say is we're tracking as expected on the 100G. I think there's always hiccups in the plan from time to time, **but overall the customers are basically purchasing what they led us to expect that they would purchase. And we feel comfortable with their plans for the future in terms of our capacity and our ability to meet their needs.**~~

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~~100. Both analysts and investors responded to this favorable outlook. AOI's stock price rose from a close of $37.47 per share on February 23, 2017 to a close of $45.98 per share on heavy trading volume of over 6.5 million. Northland Securities reported that the Company was "well ahead of our $75M estimates with expectation for 100G to account for all of that growth with slight declines in 40G." Roth Capital Partners stated on February 24, 2017:~~

> ~~We believe management made a very strong case as to how its business is fundamentally different from many other optical networking suppliers. In most other cases, a significant portion of optical revenues are driven by telecommunications service provider CAPX spending cycles. In AOIs case, however, it has essentially zero exposure to this inherently cyclical market. Instead, AOI generates over 80% of sales from datacenter networking, which has fundamentally different demand drivers in that the final customers are continuously reliant on driving to the lowest cost per performance in order to support their own growing businesses.~~

~~101. The statements above were materially false and/or misleading because they misrepresented and failed to disclose the following adverse facts pertaining to the Company's business, operations, and prospects, which were known to Defendants or recklessly disregarded by them. Specifically, Defendants made false and/or misleading statements and/or failed to disclose that: (i) as soon effectively admitted to by Defendant Murry on May 4, 2017, they lacked the capacity to transition quickly from 40G to 100G manufacturing ("growth rate is not dependent on demand. It's dependent on our ability to continue to ramp our manufacturing"); (ii) they were taking shortcuts in manufacturing and quality assurance to increase manufacturing yields, lower costs, and maintain high gross margins, as identified by CW1 and resulting in faulty transceivers being sent to Amazon during the first half of 2017; (iii) they were losing market leadership to~~

~~increasing competition due to customers adopting the "merchant model"; (iv) they knew that, based on customers' minimum purchase obligations and forecasted requirements, that demand for AOI's 100G transceivers was not going to grow at the rate Defendants represented because Amazon had committed order amounts and gave purchase forecasts to AOI prior to the beginning of the Class Period; and (v) as a result of the foregoing, the Company's financial statements were materially false and misleading.~~

129. The statements above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above. Moreover, as a result of the product and manufacturing defects associated with the 100G transceiver, AOI was unable to keep up with Amazon's hefty demand and was experiencing production shortfalls from yield and reliability issues.

~~C.~~2. The 2016 ~~Form~~and 2017 Forms 10-K ~~Filed March 9,~~and the 1Q 2017 to 2Q 2018 Forms 10-Q

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~~102. On March 9, 2017, AOI filed its Annual Report on Form 10-K with the SEC for the year-ended December 31, 2016 (the "2016 Form 10-K"), which was signed by~~ Defendants Lin and Murry~~.~~

130. ~~The 2016 Form 10-K contained similar statements to those from the February 2017 Call regarding the benefits~~ signed all of the ~~Company's~~ Forms 10-K and 10-Q filed by AOI with the SEC during the Class Period.[10]

[10] Annual Report on Form 10-K with the SEC for the year-ended December 31, 2017 (the "2017 10-K," filed Feb. 28, 2018); Annual Report on Form 10-K with the SEC for the year-ended Dec. 31, 2016 (the "2016 10-K," filed Mar. 9, 2017); Quarterly Report on Form 10-Q for the three months ended Mar. 31, 2017 (the "1Q 2017 10-Q," filed May 9, 2017). Quarterly Report on Form 10-Q for the three months ended June 30, 2017 (the "2Q 2017 10-Q," filed Aug. 8, 2017); Quarterly Report on Form 10-Q for the three months ended Sept. 30, 2017 (the "3Q 2017 10-Q,"

~~103.~~ Both the 2016 and 2017 10-Ks falsely claimed that AOI's vertical integration~~,~~ ~~customer visibility and the 100G transition.~~

~~104.~~131. ~~Specifically, the 2016 Form 10-K listed "[v]ertically integrated, geographically distributed manufacturing model" as a "key~~ model gave it a decisive competitive ~~strength[]." It also stated that the Company "expect[ed] continued sales of our 40 Gbps and 100 Gbps~~ advantage by providing better quality control of AOI's products ~~in 2017, and…expect[ed] that sales of 100 Gbps~~ , reduced costs and the ability to transition to new products ~~[would] eventually exceed sales of 40 Gbps products."~~quickly:

~~105. The statements above were materially false and/or misleading because they misrepresented and failed to disclose the following adverse facts pertaining to the Company's business, operations, and prospects, which were known to Defendants or recklessly disregarded by them. Specifically, Defendants made false and/or misleading statements and/or failed to disclose that: (i) as soon effectively admitted to by Defendant Murry on May 4, 2017, they lacked the capacity to transition quickly from 40G to 100G manufacturing ("growth rate is not dependent on demand. It's dependent on our ability to continue to ramp our manufacturing"); (ii) they were taking shortcuts in manufacturing and quality assurance to increase manufacturing yields, lower costs, and maintain high gross margins, as identified by CW1 and resulting in faulty transceivers being sent to Amazon during the first half of 2017; (iii) they were losing market leadership to increasing competition due to customers adopting the "merchant model"; (iv) they knew that, based on customers' minimum purchase obligations and forecasted requirements, that demand for~~

filed Nov. 8, 2017); Quarterly Report on Form 10-Q for the three months ended Mar. 30, 2018 (the "1Q 2018 10-Q," filed May 8, 2018); Quarterly Report on Form 10-Q for the three months ended June 30, 2018 (the "2Q 2018 10-Q," filed Aug. 8, 2018) (the "False and Misleading SEC Filings").

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~~AOI's 100G transceivers was not going to grow at the rate Defendants represented because Amazon had committed order amounts and gave purchase forecasts to AOI prior to the beginning of the Class Period; and (v) as a result of the foregoing, the Company's financial statements were materially false and misleading.~~

> The internet data center market is our largest and fastest growing market. Our customers in this market are generally large internet-based ("Web 2.0") data center operators, to whom we supply optical transceivers that plug into switches and servers within the data center and allow these network devices to send and receive data over fiber optic cables. The majority of the data center optical transceivers that we sell utilize our own lasers and subassemblies (we refer to the transceivers subassemblies as "light engines"), and **we believe that our in-house technology and manufacturing capability for these lasers and subassemblies gives us an advantage over many of our competitors who often lack either development or manufacturing capabilities for these advanced optical modules.** 2016 10-K at 3-4; 2017 10-K at 4.
>
> * * *
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> ***Deliver high quality, reliable products in high volume*** [emphasis in original]. **As a vertically integrated supplier, we are able to monitor and maintain quality control throughout the production process, using our internally produced components where possible for our final products**. With manufacturing facilities in the U.S., Taiwan and China, we can support high volume production and timely delivery for our customers around the world. 2016 10-K at 5; 2017 10-K at 6.
>
> * * *
>
> With a vertically integrated manufacturing process, we produce many of our own laser chips and other parts required to manufacture our optical components. **Through this model, we are able to reduce development time and product costs as well as enhance quality control.** We incorporate our own components into our transceivers, subsystems and equipment products wherever possible. In instances where we do not produce components ourselves, we source them from external suppliers and regularly evaluate these relationships in an attempt to reduce risk and lower cost. 2016 10-K at 10; 2017 10-K at 10.

132. The above statement above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above. Thus, AOI's purported in-house manufacturing capability did not give it the advantage over competitors that it was representing as Amazon was already decreasing its demand and going elsewhere to fill its transceiver needs due

to ***quality control issues*** resulting from manufacturing and product defects relating to the 100G transceiver.

133. The 2016 10-K, 2017 10-K, and all 10-Qs during the Class Period also falsely touted the purported advantages of AOI's vertical integration model and that, as a result, AOI's lasers were "proven" reliable:

> **Our vertically integrated manufacturing model provides us several advantages, including rapid product development, fast response times to customer requests and control over product quality and manufacturing costs**. We design, manufacture and integrate our own analog and digital lasers using a combination of Metal Organic Chemical Vapor Deposition, or MOCVD, and our proprietary Molecular Beam Epitaxy, or MBE, fabrication process, which we believe is unique in our industry. We manufacture the majority of the laser chips and optical components that are used in our products. **The lasers we manufacture are proven to be reliable over time** and highly tolerant of changes in temperature and humidity, making them well-suited to the CATV and FTTH markets where networking equipment is often installed outdoors. 2016 10-K at 4; 1Q 2017 10-Q at 19-20; 2Q 2017 10-Q at 19; 3Q 2017 10-Q at 20; 2017 10-K at 4; 1Q 2018 10-Q at 21; 2Q 2018 10-Q at 21-22.

134. The above statement above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above. Moreover, according to CW2, AOI was experiencing latent reliance issues with its 100G transceivers and thus, its laser chips were unreliable, resulted in AOI experiencing production shortfalls and Amazon reducing its demand for 100G transceivers as of the beginning of the Class Period while it sought supply elsewhere.

135. In the 2016 and 2017 10-Ks, AOI falsely attributed its competitive strengths to its vertical integration model and resulting product reliability:

> We believe the principal competitive factors in our target markets include the following: use of internally manufactured components; product breadth and functionality; timing and pace of new product development; breadth of customer base; technological expertise; reliability of products; product pricing; and manufacturing efficiency. **We believe that we compete favorably with respect to the above factors based on** our MBE and MOCVD processes, **our vertically integrated model, the performance and reliability of our product offerings, and our technical expertise in light engine design and manufacture.**

2016 10-K at 11-12; 2017 10-K at 11-12.

136. The above statement above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above.

~~D.~~3. The March 22, 2017 ~~Investor Session~~Optical Fiber Communication Conference and Exhibition Conference

~~106.~~137. On March 22, 2017, Defendant Murry participated in an investor session at the Optical Fiber Communication Conference and Exhibition ("OFC") (the "~~March~~ 2017 ~~Investor~~OFC Conference") where he spoke at length about the benefits of AOI's vertically integrated manufacturing. ~~With respect to AOI's supposed advantage as a transceiver manufacturer that made its own chips in-house, he stated,~~

138. Defendant Murry, describing AOI's chip-making process, stated at the 2017 OFC Conference:

> So, we start with a wafer, a semiconductor material that basically devoid of active layers or active devices on there. Upon that substrate material, which we buy and other companies presumably buy as well, we do some process called epitaxy. That is we're growing additional layers on top of the substrate materials that actually form the laser itself, or in the case of the receiver, a photodiode.
>
> Those layers, essentially, are where all the action is. **We do that in-house and as we mentioned in the video, we're one of relatively small number of companies that actually has the capability in-house to grow these wafers and to do the rest of the laser manufacturing process. And I think that's the key differentiator because as you may hear at the show, lasers not only define the performance [to date extent]** [bracketed text in original] **of these modules, but they're also critical to on-time delivery schedule and being able to ramp up as customer demand increases, which of course we're seeing in some of the markets that we're in.**

~~107. He further stated,~~

139. The above statement above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above.

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140. Defendant Murry further emphasized the purported benefits of AOI's vertical integration manufacturing process at the 2017 OFC Conference, stating:

> **So what does vertical integration do for us? Faster time to market, because we don't have to rely on a very long supply chain of different suppliers that all have to align in terms of schedules, we can do most of that in-house**. So, we tend to be faster time to market, perhaps more than -- in time to market, I should say, what we're really talking about here is time to volume.
>
> **That is there maybe companies out there that can deliver a small quantity of transceivers in a very short time, but what really matters to our customers is how fast can we get them the volumes that they need within their applications. So in the data center, it's not about making the first few samples or the first 100 units, it's about how fast can you really scale the business. And I think vertical integration gives us a big advantage in terms of time to scale.**

****

141. The above statement in paragraph 140 was materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above. Moreover, as a result of numerous product and manufacturing issues relating to the 100G, AOI's in-house processes could not provide AOI with the ability to quickly "scale" to meet demand for 100Gs because, as CW2 recounted, during the Class Period, AOI was unable to rapidly produce defect-free transceivers, as illustrated by AOI's shipment to Amazon of a smaller set of defective *test* transceivers during March to June 2017.

142. At the 2017 OFC Conference, Defendant Murry also stated,

> So one of ~~the~~ themes that AOI has promulgated throughout the years, especially in our data center business is we like to keep a great deal of commonality in terms of the way that products are designed and manufactured from one generation of products to another. **That gives us the ability to flexibly shift from -- for example in the data center world from 40 gigabits per second to 100 gigabits per second without having through radically change our production process or invest in massive amounts of new equipment or whatever. And we can also change back and forth flexibly as customer demand changes, again a very important aspect of vertical integration particularly to our customers.**

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And finally rapid response to the customer and market demand, so as we see these shifts and changes in the marketplace, the one thing I can say about the optical industry is that it's a very fast moving market. There's a lot of shifts and demand from time to time and as we bring our new customers, those demands change as well because not every customer needs exactly the same type of product. **So, the ability to flexibly change or adapt to the customer demand I think is also key part of that vertical integration strategy.**

~~108. Defendant Murry stated that the Company was ready for the increasing demand from data centers and that customers had relayed their demands for the year:~~

143. The above statement above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above and, thus, it was false and misleading to tout that AOI's vertical integration gave it "the ability to flexibly shift" from 40G to 100G, to "change back and forth flexibly as customer demand changes," and to "flexibly change or adapt to the customer demand."

144. At the 2017 OFC Conference, Defendant Murry also stated,

We do see a lot of pull from customers to add capacity. Fortunately, we made a lot of investments last year and the year before that allow us to have -- **at least AOI to have the ability to add that capacity relatively quickly and I think we're getting a pretty strong customer response, a positive customer response based on our -- the plans that we've disclosed to them about how we plan to meet their upcoming increasing demand.**

Some facts last year, we increased our production of data center transceiver products last year by about 70% from Q1 to Q4, but we didn't increase our headcount at all. And one of the things that we did last year was we spent a lot of money -- and actually the year before, but we spent a lot of money and time doing process automation, being able to do more of the production that we do in an automated fashion. That is much easier to scale than manual -- more manual processes, and so that investment along with the investment that we made in the fab, really gives us the ability to scale our production pretty rapidly and we think **we're doing a reasonably good job of anticipating and meeting the demands of the customers** have told us that they're going to need for this year and next year.

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~~109. Based on Defendant Murry's presentation, Roth Capital Partners reported that the "unit opportunity per datacenter is incredibly large" and that "there remains a strong premium over 40G and margins are inherently stronger for 100G solutions."~~

~~110. The statements above were materially false and/or misleading because they misrepresented and failed to disclose the following adverse facts pertaining to the Company's business, operations, and prospects, which were known to Defendants or recklessly disregarded by them. Specifically, Defendants made false and/or misleading statements and/or failed to disclose that: (i) as soon effectively admitted to by Defendant Murry on May 4, 2017, they lacked the capacity to transition quickly from 40G to 100G manufacturing ("growth rate is not dependent on demand. It's dependent on our ability to continue to ramp our manufacturing"); (ii) they were taking shortcuts in manufacturing and quality assurance to increase manufacturing yields, lower costs, and maintain high gross margins, as identified by CW1 and resulting in faulty transceivers being sent to Amazon during the first half of 2017;(iii) they were losing market leadership to increasing competition due to customers adopting the "merchant model"; (iv) they knew that, based on customers' minimum purchase obligations and forecasted requirements, that demand for AOI's 100G transceivers was not going to grow at the rate Defendants represented because Amazon had committed order amounts and gave purchase forecasts to AOI prior to the beginning of the Class Period; and (v) as a result of the foregoing, the Company's financial statements were materially false and misleading.~~

~~E. The May 4, 2017 Press Release~~

145. The above statement above were materially false and/or misleading when made for the same reasons stated in paragraphs 122-23 above. Moreover, AOI was unable to meet Amazon's demands due to low yields and faulty chip coating issues. Thus, Amazon had already started transitioning its business elsewhere.

B. False and Misleading Statements Concerning the Threat of the Merchant Model

~~111.~~146. On May 4, 2017, AOI issued a press release announcing the Company's first quarter 2017 financial results (the "May 2017 Press Release~~"). In this press release, the Company reported "record performance" with Defendant Lin stating: "We are very pleased with the team's continued execution. Our~~ ~~***commitment to technology innovation, manufacturing excellence and customer satisfaction are qualities that continue to set AOI apart***~~~~, and we believe our performance in the quarter further demonstrates our commitment to excellence in these areas.""~~") and, after market close, held an investor earnings call (the "May 2017 Call"). During the May 2017 Call, Defendant Murry stated, in response to a Cowen analyst's question concerning white-box model competition:

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~~112. The statements above were materially false and/or misleading because they misrepresented and failed to disclose the following adverse facts pertaining to the Company's business, operations, and prospects, which were known to Defendants or recklessly disregarded by them. Specifically, Defendants made false and/or misleading statements and/or failed to disclose that: (i) as effectively admitted to by Defendant Murry on the earnings call the same day, they lacked the capacity to transition quickly from 40G to 100G manufacturing ("growth rate is not dependent on demand. It's dependent on our ability to continue to ramp our manufacturing"); (ii) they were taking shortcuts in manufacturing and quality assurance to increase manufacturing yields, lower costs, and maintain high gross margins, as identified by CW1 and resulting in faulty~~

~~transceivers being sent to Amazon during the first half of 2017; (iii) they were losing market leadership to increasing competition due to customers adopting the "merchant model," as specifically discussed at length by merchant model competitor MACOM in April of 2017; (iv) they knew that, based on customers' minimum purchase obligations and forecasted requirements, that demand for AOI's 100G transceivers was not going to grow at the rate Defendants represented because Amazon had committed order amounts and gave purchase forecasts to AOI prior to the beginning of the Class Period; and (v) as a result of the foregoing, the Company's financial statements were materially false and misleading.~~

~~F. The May 4, 2017 Earnings Call~~

~~113. The Company also held the first quarter 2017 investor earnings call on May 4, 2017 after market close (the "May 2017 Call"). During this call, the Defendants vehemently denied any competition issues due to benefits of their vertical integration model and continued to tout AOI's relationship and visibility with Amazon and their other data center customers.~~

~~114. Despite the fact that MACOM was gaining 100G market share and working with Amazon on a "merchant model", both Defendant Lin and Defendant Murry dismissed any and all suggestions that competition was or could affect the Company. In response to Cowen analyst Paul Silverstein's question "[w]hy should The Street not be concerned given that there certainly appears to be concern that you're going to be displaced to one extent or another, especially in the 100 gig arena, " Defendant Murry stated:~~

> ~~Paul, well, that's a good question to start off with. So think first of all, as we said all along,~~ ***~~the most important factor for our success with these customers has been our ability to scale rapidly to meet their needs and to have a very low cost structure that allows us to get high gross margin while still meeting their pricing expectations.~~*** ~~We believe relative to any other technology out there that we maintain a significant differential in terms of cost, that is that we're the lowest cost technology out there by a fairly wide margin. And this is particularly true when it comes to the CWDM products. As we mentioned in the prepared remarks, the~~

~~CWDM products make up the majority. As a percentage of the overall revenue, it's more than doubled since last year. And that's because these datacenters are getting larger. And as a consequence of the larger size of the datacenters, there's more emphasis from these customers on the CWDM products which, for us, are more highly differentiated and carry a higher gross margin. So all the trends that we're seeing, I think, are very positive for our technology. And even on the relatively smaller PSM products,~~ ***~~we still maintain that we have a significant edge in terms of cost, mainly due to our vertical integration and the amount of attention that we've paid to the manufacturing process, the automation that we put in place and the other factors that we've talked about a number of times that have really differentiated our manufacturing processes.~~***

~~115. Analyst Silverstein pushed the question, asking directly about the Company's largest customers:~~

~~**Paul Jonas Silverstein** - Cowen and Company, LLC, Research Division - MD and Senior Research Analyst~~
~~All right. And guys, just to be clear, my last question on this.~~ As of now, you don't see -- you ~~don't~~don't foresee, you ~~***don't***~~don't anticipate being intercepted in a meaningful way at any of Amazon, Microsoft or Facebook. ~~***There's***~~There's nothing you're aware of at this point that will cause you concern that there's a share shift to one or more other competitors~~**?**~~?"

~~**Stefan J.**~~ [Murry~~ - Applied Optoelectronics, Inc. - CFO and Chief Strategy Officer~~ :] "**That's correct**~~.~~."

~~116. Simon Matthew Leopold with~~ During the May 2017 Call, Defendant Murry also stated, in response to a Raymond James ~~& Associates, Inc. directly questioned the Defendants regarding MACOM's "merchant model":~~

~~**Simon Matthew Leopold** - Raymond James & Associates, Inc., Research Division - Research Analyst~~
147. ~~So that actually nicely sets up my next~~analyst's question, ~~is we've sort of heard this bear case of companies that would sell merchant elements. They would sell lasers and semiconductors to other manufacturers or to contract manufacturers that could then compete with you. So I guess one side of the bear case about your company is that there are other competitors taking share. The other side is this sort of unidentified competitor that would buy merchant~~

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~~elements.~~ "Can you help us understand the potential for ~~that~~[the merchant model] as a competitive threat~~? Hopefully that makes sense, and I can be more explicit if you want.~~?",

~~**Stefan J. Murry** - Applied Optoelectronics, Inc. - CFO and Chief Strategy Officer~~
~~No, I understand what you're getting at.~~ So we have a great deal of vertical integration, as ~~***we've***~~we've talked about ever since we went public. We do a lot of these things in house. We make our own lasers, we build our own light engines, we do our own production, we do our own testings, okay? There are companies out there that have talked about sort of disaggregating that, if you will, and one company will grow the laser chip, somebody else will do the assembly, somebody else will do the test, somebody makes the chips, et cetera, et cetera, okay. Relative to our business model – I mean, this has been the big advantage of our business model. And I will point out to you, at this point, we've got a 5-plus year track record in the datacenter industry of high -- highly successful business, as evidenced by this quarter and our previous -- really, going back 4, 5 years, you can look at our results. The vertically integrated business model, we believe, is the best way to economically manufacture these datacenter products. **And there are competitors out there that are talking about doing different business models. But economically, that just ~~*doesn't*~~doesn't make sense.** If you have to add multiple ~~companies'~~companies' profit margins in there along with all the vagaries of the manufacturing that is yields and things that change over time and inventory management, we've done the modeling and there's just no way that, that results in a product that's less expensive for the end customer than buying it from AOI even at the profit margins or gross profit levels that we're at today. So yes, it's possible to do it that way potentially, but it doesn't result in a lower-cost product.

. . .

[. . .] **And all of that assumes that they would be as good as AOI is at all of those operations, which we don't think is possible given the fact that we are the demonstrated leader in this industry.**

148. ~~Defendant Murry also responded "yes"~~The statements above were materially false and/or misleading when ~~asked if he felt like AOI was "~~made because:

i. Amazon, AOI's largest customer at the ~~market share leader in~~ time accounting for approximately 35% of AOI's revenues in 2017, had already began moving toward the ~~100-gig web-scale~~ merchant model and was ordering transceiver components from manufacturers including MACOM, which publicly disclosed this strategy as early as April 2017, and Fabrinet

~~117.~~ii. Defendants knew from the SAP system and Amazon's contract requirements that Amazon had significantly reduced its demand for 100G transceivers~~."~~.

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iii. Defendants knew or recklessly disregarded that, as Fabrinet and MACOM publicly disclosed as early as April or May 2017, Amazon was acquiring components for its transceivers elsewhere;

iv. Because the disadvantages of the "merchant model" articulated by Defendant—including problems with "testing" and that "economically, [the competitors' model] doesn't make sense"—were shared by the "vertical integration" model, it was false and misleading to tout AOI's "vertical integration" and its status as "the demonstrated leader in this industry" as ensuring that "different business models" would not "be as good as AOI is at all of those operations."

C. False and Misleading Statements Concerning Future Demand

149. During the February 2017 Call, Defendant Murry falsely claimed, in response to an analyst's question regarding the ramp-up in production for 100G that customers were ordering what they said they would:

~~118.~~ The other question that you had was related to what Troy was asking about too in terms of the 100G ramp up. What I could say is we're tracking as expected on the 100G. I think there's always hiccups in the plan from time to time, **but overall the customers are basically purchasing what they led us to expect that they would purchase. And we feel comfortable with their plans for the future in terms of our capacity and our ability to meet their needs.**~~Additionally, Defendant Murry also stressed the Company's knowledge of its customers' wants and needs and AOI ability to deliver on the 100G demand. Furthermore, although he acknowledged the challenge of ramping up manufacturing capacity, he assured investors that AOI was at an advantage compared to its competitors in doing so:~~

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150. The statement above was materially false and/or misleading when made because, as a result product AOI's defective 100G transceivers, faulty vertical integration model, lack of quality control, low yield and reliability issues, Amazon had already reduced its forecasted orders

and was going elsewhere to fill demand. Thus, customer demand was not, as Defendants represented, consistent with prior forecasts.

151. During the May 2017 Call, Defendant Murry touted the Company's status as a purported "cost leader" as leading to its future success in both 40G *and 100G* transceivers:

> Based on current orders and forecasts from our customers, we believe that 2017 datacenter revenue should grow by more than 85% compared with 2016 and would include contributions from 3 hyperscale datacenter customers, each of whom will represent more than 10% of our annual revenue.
>
> ****
>
> [. . .] So when you talk about for AOI, will 40G be higher in 2017 compared to 2016, the answer is probably yes. However, I would caution that, that doesn't necessarily mean that that's the same thing for the industry, right, because we added a significant new customer for 40G during the year. Overall, I would say in general terms, while I can't speak to the specifics of the industry, I think it's widely acknowledged and most people would agree that 100 gig is growing. **We were first to market with 100-gig products, first to volume with those products and we believe ~~*we're*~~we're the cost leader on those products. So I think we're going to be very successful in both 100G and 40G throughout the year.**

~~119. Defendant Lin also commented on the Company's ability to compete in the 100G realm specifically, stating in relevant part:~~

> ~~***I want to emphasize in the 100G (inaudible), this is much tougher to design and manufacture (inaudible) than PSM4. So there are much less competitors. And for us, AOI has much stronger cost advantage (inaudible).*** So that's why we have updated the long-term model in last quarter earnings call. And we believe that's what we can maintain even for the long-term, or even higher.~~

~~120. Defendants also suggested that constraints on sales to customers were driven purely by manufacturing capacity issues, without acknowledging sagging market demand for 40G transceivers, a lack of demand from Amazon for AOI's 100G transceivers.~~

> ~~Brian Matthew Alger - Roth Capital Partners, LLC, Research Division - Head of Technology Research and Senior Research Analyst~~
> ~~Obviously, there's been a fair amount of hand-wringing over the past couple of weeks. I'm wondering where we are in terms of that crossover and what your~~

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~~expectations are as we go through the year. Clearly 100 gig is ramping, but given your customer mix, are you still anticipating that you'll lag the industry in terms of your crossover point?~~

~~Stefan J. Murry - Applied Optoelectronics, Inc. - CFO and Chief Strategy Officer Brian, when you talk about crossover point, what exactly are you referring to?~~

~~Brian Matthew Alger - Roth Capital Partners, LLC, Research Division - Head of Technology Research and Senior Research Analyst Sorry. 100 gig versus 40 gig. And I'm talking revenues relative to units.~~

~~Stefan J. Murry - Applied Optoelectronics, Inc. - CFO and Chief Strategy Officer So you're asking, when do we expect the 100-gig revenue will overtake 40 gig revenue? I mean, if you're asking that, we don't really disclose that on a forward-looking basis. We think that obviously 100 gig is growing. 40 gig for us is also very strong. It was -- we were actually -- we had another record quarter in 40-gig sales as well. It was pretty much flat over last quarter, but it was up ever so slightly. So we're expecting a good year both in 40 gig and 100 gig. But as far as when that crossover happens, we don't really talk about that.~~

~~****~~

~~Stefan J. Murry - Applied Optoelectronics, Inc. - CFO and Chief Strategy Officer Right now, we're basically shipping everything we can manufacture.~~ ~~***So the growth rate is not dependent on demand. It's dependent on our ability to continue to ramp our manufacturing***~~~~. So we talked just a moment ago with Troy, he mentioned some of the figures that we had projected in terms of laser sales. I think that you can draw some conclusions from there. But there's a limit to how fast we can increase our production capacity. So that's really the limiting factor to the growth rate.~~

~~121. Once again, both the market and analysts believed the positive message relayed by Defendants and AOI's stock price rose $9.15 from a closing price of $46.81 on May 4, 2017 to a closing price of $55.96 per share on May 5, 2017 on heavy trading volume of 10.8 million. Piper Jaffray reported that it "continue[s] to believe AAOI remains in prime positon to see impressive growth in 2017 as demand for 100G optics accelerates." Roth Capital Partners raised their numbers "directly in the face of skeptics' claims of increasing competition" and "believe AOI is deeply undervalued."~~ The ~~Cowen & Co. analyst specifically noted that "AAOI's ability to~~

~~vertically integrate and manufacture virtually all the components of its 100G optical light engines should continue to fuel AAOI's ability to drive GM progression ahead of price declines."~~

~~122.~~152. ~~The statements~~statement above ~~were~~was materially false and/or misleading ~~because they misrepresented and failed to disclose the following adverse facts pertaining to the Company's business, operations, and prospects, which were known to Defendants or recklessly disregarded by them. Specifically, Defendants~~ when made ~~false and/or misleading statements and/or failed to disclose that: (i) they lacked the capacity to transition quickly from 40G to 100G manufacturing, as effectively admitted to, but not made clear, by Defendant Murry during this call when he stated "the growth rate is not dependent on demand. It's dependent on our ability to continue to ramp our manufacturing"; (ii) they were taking shortcuts in manufacturing and quality assurance to increase manufacturing yields, lower costs, and maintain high gross margins, as identified by CW1 and resulting in faulty transceivers being sent to Amazon during the first half of 2017; (iii) they were losing market leadership to increasing competition due to customers adopting the "merchant model," as specifically discussed at length by merchant model competitor MACOM in April of 2017; (iv) they knew that~~for the reasons set forth in paragraphs 122 and 150 above. Moreover, Defendants knew, based on ~~customers'~~Amazon's minimum purchase obligations and forecasted requirements documented in the SAP system, that demand for AOI's 100G transceivers was not going to grow at the rate Defendants represented (if at all) because Amazon had committed order amounts and gave purchase forecasts to AOI ~~prior to the beginning of~~throughout the Class Period~~; and (v) as a result of the foregoing, the Company's financial statements were materially false and misleading.~~. In light of these facts, it was false and misleading to state that AOI could use its "first to market" status to be "very successful in both 100G and 40G throughout the year."

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~~G. The July 13, 2017 Press Release~~

~~123. On July 13, 2017, before market open, AOI issued a press release, entitled "Applied Optoelectronics Expects Second Quarter 2017 Results to Exceed Guidance," announcing the Company's expected financial results for the second quarter of 2017 ending June 30, 2017 (the "July 2017 Press Release"). The July 2017 Press Release stated that~~

> ~~"I'm pleased to announce that **_we expect to deliver another record quarter with our top and bottom-line results expected to exceed our guidance,"_** said Dr. Thompson Lin, Applied Optoelectronics, Inc. founder, president and CEO. "Again this quarter, our results were driven by improvement in our manufacturing costs, capacity expansion and solid execution by our production team. We are pleased with our performance and look forward to sharing the additional details of our second quarter results on our conference call in August."~~

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~~124. This positive pre-announcement lead to heavy trading volumes of over 8 million on July 13, 2017 and increase in AOI's share price of $5.40 to a closing price of $78.04 per share. Piper Jaffray recognized the Company's "impressive quarter with revenue upside and record margin levels that have never been seen before in the optical component industry" and believed "Applied [had] exceptional visibility through the remainder of 2017…." Roth Capital Partners noted that the press release "didn't provide much detail as to where the specific strength came from, however we assume most of the upside came from datacenter, which continues to see tremendous potential for the company."~~

~~125. The statements above were materially false and/or misleading because they misrepresented and failed to disclose the following adverse facts pertaining to the Company's business, operations, and prospects, which were known to Defendants or recklessly disregarded by them. Specifically, Defendants made false and/or misleading statements and/or failed to disclose that: (i) they lacked the capacity to transition quickly from 40G to 100G manufacturing, as effectively admitted to by the Defendants on the May 2017 Call ("growth rate is not dependent~~

~~on demand. It's dependent on our ability to continue to ramp our manufacturing") and soon after on August 3, 2017 ("the time to actually shift over the production is…about 6 weeks."); (ii) they were taking shortcuts in manufacturing and quality assurance to increase manufacturing yields, lower costs, and maintain high gross margins, as identified by CW1 and resulting in faulty transceivers being sent to Amazon prior to this statement; (iii) they were losing market leadership to increasing competition due to customers adopting the "merchant model," as discussed by merchant model competitor beginning in April of 2017 and resulting in the publicly announced transceiver building alliance between Amazon, Fabrinet and MACOM on June 26, 2017; (iv) they knew that, based on customers' minimum purchase obligations and forecasted requirements, that demand for AOI's 100G transceivers was not going to grow at the rate Defendants represented, because Amazon had committed order amounts and gave purchase forecasts to AOI prior to the beginning of the Class Period; and (v) as a result of the foregoing, the Company's financial statements were materially false and misleading.~~

VI. THE TRUTH ~~EMERGES THROUGH~~IS REVEALED OVER SEVERAL PARTIAL CORRECTIVE DISCLOSURES WHILE DEFENDANTS CONTINUE TO ~~ISSUE FALSE ASSURANCES~~MISLEAD INVESTORS

A. The August 3, 2017 Press Release Disclosing for the First Time that Sales to Amazon of 40G Were Expected to Drop Significantly in Q3 2017

~~126.~~153. On August 3, 2017, AOI issued a press release after market hours announcing the Company's final financial results for the second quarter of 2017 ending June 30, 2017 (the "August 2017 Press Release~~"). The press release was attached as Exhibit 99.1 to AOI's~~

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~~Form 8-K filed on~~") and held an earnings call (the "August ~~3,~~ 2017~~. The~~ Call"). In the August 2017 Press Release ~~revealed~~, Defendants were forced to reveal that ~~one of the Company's~~"a large ~~data center customers was reducing~~datacenter customer"—known to be Amazon—had decreased its ~~40G product orders, stating, in relevant part:~~demand for the 40G products going into the third quarter of 2017. Defendant Lin stated,

> ~~"AOI achieved another record performance driven by strong demand for our market-leading datacenter products and continued improvement in our manufacturing costs and capacity expansion," said Dr. Thompson Lin, Applied Optoelectronics, Inc. founder, president and CEO. "**Our record gross margin and earnings demonstrate the strength of our business model and deep manufacturing know-how. We believe our ability to leverage our vertical integration and proprietary manufacturing processes to drive greater efficiencies and shorten our production cycle times sets AOI apart from others in the industry**."~~

> ~~Lin continued, "~~We are pleased with our team's continued solid execution in the quarter, which marked our ninth consecutive quarter of generating record datacenter revenue. However, as we look into the third quarter, **we see softer than expected demand for our 40G solutions with one of our large customers** that will offset the sequential growth and increased demand we expect in 100G. **We believe AOI has a leading position in the advanced optics market and we continue to expand within our existing customer base as well as engage with new customers for 100G technologies and beyond**~~."~~".

~~B. The~~During the August ~~3,~~ 2017 ~~Earnings~~ Call

~~127.~~154. ~~Defendants also hosted an earnings conference call on August 3, 2017 after market close reporting the financial results for the second quarter 2017 ending June 30, 2017 (the "August 2017 Call"). During the call~~, Defendant Murry ~~reiterated the weakening 40G demand, stating~~echoed Lin's earlier statements:

> As we look into Q3, **we see softer than expected demand for our 40G solutions with one of our** large **datacenter customers that will offset the sequential growth and increased demand we expect to see in 100G**. This slowdown in 40G demand has been anticipated for some time, **but the decline in Q3 is greater than previously expected.** [. . .]

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~~Emphasis added.~~

~~128. Murry claimed that Amazon's decreasing demand for 40G products was a "surprise" and stressed that the Company had only recently found out about it:~~

> ~~**Brian Matthew Alger - Roth Capital Partners, LLC, Research Division - Head of Technology Research & Senior Research Analyst**~~

155. ~~Right. Well, it seems as you clearly have a pretty good handle on what's going on with 100G and next generation type of designs with your customers.~~ In fact, during Q3 2017, AOI's sales of 40G transceivers dropped from approximately $56.6 million to $27 million, while its sales of 100G transceivers increased only negligibly, increasing by only $1.8 million from Q2 2017. Thus, it was known to Defendants at the time of the August 2017 Call that, contrary to Defendants' representations, AOI was not successfully transitioning from 40G to 100G; rather, it was losing ground in the *entirety* of its transceiver business.

156. When questioned by a Roth Capital Partners analyst during the August 2017 Call about how AOI could pre-report a "record performance" (as AOI stated in the August 2017 Press Release) only to report a substantial decline in 40G sales two weeks later, Defendant Murry claimed it was a "recent development:"

> Q: **ROTH CAPITAL PARTNERS:** "I'm curious as to how -- you seem to have been caught off-guard in terms of the decline on 40 gig. Is that something that transferred from your customer recently? Or is that something that was communicated in the middle of the quarter~~?~~?"

> ~~**Stefan J. Murry - Applied Optoelectronics, Inc. - CFO and Chief Strategy Officer**~~
> A: MURRY: **It's a recent development.** And again, it's not that we didn't expect 40 gig to decline with this customer or the other customers, we knew it would. **It's just coming a little bit faster which, in the end, means a faster transition to 100 gig, which is not a bad thing. But obviously, in this particular quarter, it's happened faster than we expected.**

> ~~**Brian Matthew Alger - Roth Capital Partners, LLC, Research Division - Head of Technology Research & Senior Research Analyst**~~

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~~Understand. I think we all expect the transition to occur and we all think it's a positive, certainly for you guys, given your product portfolio. I guess where I'm going with this is, it's a bit unusual for a company to preannounce a very strong beat and then to have something like this come in a couple of weeks later from that announcement. And I'm just -- it seems as though maybe you guys were informed of this after your positive pre-announcement.~~

~~**Stefan J. Murry - Applied Optoelectronics, Inc. - CFO and Chief Strategy Officer**~~

~~That is true, but just to be clear, the pre-announcement is made when we see the results of the quarter differing materially from the last guidance that we put out with The Street. That's why we preannounce. It's not an indication of future, it's an indication that the past has been very different from what we last guided The Street. In other words, we don't want -- when we know that there is different information from what we've previously guided for, we want to get that information in the hands of investors as quickly as possible. That's what investors have asked us to do and that's what we think is the right thing to do. But that's not necessarily an indication of any particular thing about the future.~~ . . . **In this case, the information that we got about the 40 gig actually did happen post the pre-announcement**, but that wouldn't necessarily change our thinking about whether or not to preannounce.

157. On the news of the dramatic decline in Amazon's demand for 40G transceivers, the Company's share price fell over 34%.~~Defendants revealed for the first time~~

~~129.~~ AOI, however, continued to make deceptive statements during August 2017 Call, stating that ~~"change over time" on the product lines~~100G demand with Amazon was ~~six weeks: "[T]here's about a 6-week time from when we produce a laser to when [it] actually gets shipped out as a transceiver. And so the time~~on track: "**We continue to** ~~actually shift over~~**expect to have 3 hyperscale customers, each represent more than 10% of our revenue for the** ~~production is not long, but the time to -- between doing that shift and when you start to see the end product transceivers coming out is about 6 weeks."~~

~~130.~~158. ~~When questioned by analysts about Amazon's 100G demand, Defendant Murry assured investors~~ **full year 2017**"; and that AOI had **"meaningful 100 gig revenue with**

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our largest customer as well as our other customers~~. . . . *[W]e do have meaningful meaningful 100 gig sales with all 3 of our large datacenter customers.*"~~."

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159. Defendants also continued to mislead investors about the purported "strength" of its faltering vertical integration manufacturing and its benefits that set AOI apart from competitors, stating in the August 2017 Press Release:

> AOI achieved another record performance driven by strong demand for our market-leading datacenter products and continued improvement in our manufacturing costs and capacity expansion," said Dr. Thompson Lin, Applied Optoelectronics, Inc. founder, president and CEO. "**Our record gross margin and earnings demonstrate the strength of our business model and deep manufacturing know-how. We believe our ability to leverage our vertical integration and proprietary manufacturing processes to drive greater efficiencies and shorten our production cycle times sets AOI apart from others in the industry**."

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160. The above statements in paragraphs 158-59 were materially false and misleading when because:

i. AOI was taking shortcuts in the manufacturing and quality assurance of its 100G transceivers to increase manufacturing yields, lower costs, and maintain high gross margins, including, at the specific direction of Defendants, designating unqualified and overworked R&D engineers to perform the quality control function.

ii. CW2 stated that, as a result of AOI's lack of quality control, beginning in the first half of 2017 or earlier, AOI was sending its datacenter customers (which included Amazon) 100G transceivers containing 25G laser chips that had faulty chip coatings, and thus were prone to failure (reliability issues).

iii. Defendants received oral and written reports from weekly R&D meetings showing low manufacturing and assembly yields for its 25G chips and 100G transceivers of as low as 40%, well below the 90% that Defendants expected, demonstrating AOI was experiencing significant production shortfalls due to the manufacturing of defective laser ships and thus was unable to meet Amazon's demand requirements.

iv. Chien, who reported yields directly to defendant Lin by video call, phone call or in person every couple of weeks throughout the Class Period, would have informed Defendant Lin that yield in Taiwan through Q3

2017 was as low as 40% and well below the 90% AOI needed to be profitable.

v. Defendants knew from the SAP system and Amazon's contract requirements that Amazon had significantly reduced its demand for 100G transceivers and, thus, Amazon would not provide meaningful 100 gig revenue.

vi. According to CW2, as AOI was trying to transition from 40G to 100G, AOI lacked sufficient production capacity and was "desperate" to increase the Sugar Land facility's chip production capacity by creating a new tooling or fixture to allow it to coat more chips at the same time and had not done so as of summer 2017.

vii. Defendants effectively admitted on September 28, 2018 AOI had sold to its major datacenter customers defective 100G transceivers containing 25G laser chips that were known to be prone to long-term failure.

~~131.~~ Defendant Murry also ~~stated that the Company had set prices (and sometimes price reductions) with customers: "But these price negotiations that we have undergone are something we do in advance with the customer, and~~ ~~***we know what those prices are expected to be on a go forward basis***~~~~."~~

~~132. Defendant Murry~~dismissed the effects on its business of decreased Amazon demand or the MACOM-Fabrinet partnership and assured investors ~~that sequential improvement would be seen again in December 2017 and when asked how he could be so confident stated that "~~~~***some committed orders [are] out there, not all of that expectation is committed at this point. But we do have a significant amount of committed orders and a good forecast from all 3 of our customers.***~~~~"~~

~~133.~~161. ~~Once again, the Defendants denied any competitive pressure from the MACOM–Fabrinet alliance, touting the Company's vertical integration model as a core advantage over competitors. Defendant Murry responded~~during the August 2017 Call that the "merchant model" was no threat to AOI's business or relationship with Amazon:

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So first of all, we don't believe that the MACOM-Fabrinet alliance is actually producing anything or is likely to produce any products or any meaningful quantities, certainly, in the next quarter or 2, probably longer than that. In addition to that, in the long term, and in the short term, we don't see any cost advantage to this model. AOI, as we mentioned, **is currently very highly vertical integrated on the most expensive components, meaning the lasers. As we announced in the call, we also intend to produce other optical components that we currently don't produce internally, which will further enhance the extent of our vertical integration, and we think this gives us a significant cost even against the MACOM-Fabrinet business model or any of the other competitive business models that we're aware of.**

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162. The above statements were materially false and misleading when made because:

i. Amazon, AOI's largest customer at the time accounting for approximately 35% of AOI's revenues in 2017, had already began moving toward the merchant model and was ordering transceiver components from manufacturers including MACOM, which publicly disclosed this strategy as early as April 2017, and Fabrinet;

ii. Defendants knew or recklessly disregarded that, as Fabrinet and MACOM publicly disclosed as early as April or May 2017, Amazon was acquiring components for its transceivers elsewhere;

iii. On June 26, 2017, Amazon, Fabrinet, and MACOM entered into an alliance to build transceivers.

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~~134.~~ Defendants ~~On this news, AOI's share price fell by $33.39 per share or over 34% from its previous closing price to close at $64.60 per share on August 4, 2017, damaging investors. But, the Company had convinced at least a few analysts of its false assurances, Cowen & Co. stated: "As evidenced by disappointing 3Q17 revenue outlook, 40G transceiver roll-over presents near-term risk. But we see the larger story as ongoing strong growth in data center transceiver demand with AAOI maintaining strong position at key DC customers and expanding into new DC customers and strong ongoing margins. We have increased our EPS forecasts."~~

~~135. Despite disclosure of weakening demand for AOI's 40G product with one of its major customers, the August 3, 2017 earnings release continued to contain false and misleading representations and omissions, failing to disclose the magnitude of its demand loss with Amazon,~~

~~the issues AOI was facing with 100G products and vertical integration, the magnitude of the market share with Amazon that MACOM Fabrinet had taken from AOI, and leading investors to believe that the demand would be continuing for the 100G products.~~

~~136. Consequently, the statements above were materially false and/or misleading because they misrepresented and failed to disclose the following adverse facts pertaining to AOI's business, operations, and prospects, which were known to Defendants or recklessly disregarded by them. Specifically, Defendants made false and/or misleading statements and/or failed to disclose that: (i) they lacked the capacity to transition quickly from 40G to 100G manufacturing, as effectively admitted to by the Defendants on the May 2017 Call ("growth rate is not dependent on demand. It's dependent on our ability to continue to ramp our manufacturing") and on this August 2017 Call ("the time to actually shift over the production is…about 6 weeks."); (ii) they were taking shortcuts in manufacturing and quality assurance to increase manufacturing yields, lower costs, and maintain high gross margins, as identified by CW1 and resulting in faulty transceivers being sent to Amazon prior to this statement; (iii) they were losing market leadership to increasing competition due to customers adopting the "merchant model," as discussed by merchant model competitor beginning in April of 2017 and resulting in the publicly announced transceiver building alliance between Amazon, Fabrinet and MACOM on June 26, 2017; (iv) they knew that, based on customers' minimum purchase obligations and forecasted requirements, that demand for AOI's 100G transceivers was not going to grow at the rate Defendants represented, because Amazon had committed order amounts and gave purchase forecasts to AOI prior to the beginning of the Class Period; and (v) as a result of the foregoing, the Company's financial statements were materially false and misleading.~~

iv. knew from the SAP system and Amazon's contract requirements that Amazon had significantly reduced its demand for 100G transceivers early in the Class Period.

~~C.~~B. The October 12, 2017 Press Release ~~and Earnings Call~~Reveals That Amazon's Declining Demand Was Not Limited to 40G Transceivers, As Previously Claimed, and Extended to Both 40G and 100G Transceivers

~~137.~~163. On October 12, 2017, AOI issued a press release ~~after market hours~~ announcing ~~its~~ preliminary financial results for the third quarter ~~of 2017 endingended~~ended September 30, 2017 (the "October 2017 Press Release~~"). The press release was attached as Exhibit 99.1 to the Company's Form 8-K filed on~~") reporting third quarter 2017 revenue in the range of $88 million to $89 million, falling far short of its previous revenue outlook of $107 million to $115 million. The October ~~12,~~ 2017~~, and~~ Press Release revealed ~~further details of the weakened demand from Amazon.~~for the first time that it was not just sales of 40G to Amazon that were impacted but, in fact, Amazon had decreased sales of both 40G and 100G transceivers:

> ~~"~~Our preliminary results for the third quarter fell short of prior estimates and were negatively impacted by ***lower than expected sales to one of our large datacenter customers***. ~~Despite this shortfall, we maintained a strong gross margin profile in the quarter, and continued to experience solid demand with our other top datacenter customers," said Dr. Thompson Lin, Applied Optoelectronics, Inc. founder, president and CEO. "Although we are disappointed with these preliminary results, we continue to feel good about our leadership position in advanced optics and remain optimistic based on the customer traction we are seeing with our 100G products, especially our 100G CWDM transceivers."~~

~~138.~~ During an investor call that same day (the "October 2017 Call"), Defendant Murry revealed that revenue fell short of AOI's previous guidance for the third quarter of 2017 by approximately $18 million, or 20%, due specifically to lower demand from "a large datacenter customer." While AOI had partially disclosed that this customer, Amazon, would be reducing its purchases of 40G products during the August 3, 2017 earnings call, AOI was now forced to reveal that Amazon was purchasing very little of any type of the Company's products. ~~On the same day~~

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~~after market close, AOI held a conference call to discuss its preliminary results for the third quarter ended September 30, 2017 (the "October 2017 Call"). During the October 2017 Call, the Defendants revealed that Amazon's weakening demand was not only for 40G products, but also 100G products. Defendant Murry stated, in relevant part:~~

164. Revenue from Amazon had in fact dropped from 47% of total revenue during the second quarter of 2017 to ***a mere 10%*** during the third quarter of 2017:

> ***We are disappointed with our third quarter performance. We indicated last quarter that we expected to see softer 40G demand. However, we saw lower demand overall from one of our large customers.*** Revenue from this customer in the quarter was approximately ***10% of total revenue compared with 47%*** last quarter. ~~***As a reminder, we have a vendor-owned inventory management model that we employ with this customer which can impact our revenue visibility.*** As previously discussed, this VOI program allows the customer to full inventory from a hub that AOI manages, and revenue is recorded at the time the inventory is pulled.~~

165. Upon the news, AOI's stock price dropped 20%, from an October 12, 2017 close of $58.84 to a close of $47.01 on October 13, 2017.

166. Defendants, however, continued their charade, falsely claiming that the reason for Amazon's declining demand was unrelated to AOI and instead, was due to Amazon's slower transition from 40G to 100G transceivers:

> We continue to have ongoing discussions with this customer and based on our conversations, **we believe that the disruption in order flow is related to the ongoing transition from 40G to 100G and not specific to AOI.** We also do not expect the inventory stock in our VOI hub to be impaired because forecasts indicate that this inventory will be consumed over time.

~~139. On this news, AOI's share price fell by $11.83 per share or over 20% from its previous closing price to close at $47.01 per share on October 13, 2017, causing damages to investors.~~

~~140. But, once again Defendants continued to issue false and misleading representations and omissions, failing to disclose the real reasons behind Amazon's weakening demand and its~~

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~~magnitude, instead stating that it was not an AOI issue. When questioned about losing 100G market share with Amazon, Defendant Murry stated: "Yes, ***we don't believe that this disruption in the order flow is related to anything AOI-specific. It's related to an ongoing transition from 40G to 100G.*** " And when questioned as to what drove his confidence in that fact, he replied: "As we mentioned, we continue to have ongoing discussions with this customer and our other customers as well, and those discussions have led us to believe that ***this is a — not — an event that's not specific to AOI***."~~

~~141. And once again, the Company was able to falsely assure at least some of the analysts. For example, Piper Jaffray stated: "This rapid decline caught us off guard, but we continue to believe AAOI is well positioned in the 100G market and anticipate significantly better execution for the company in 2018 as the 100G datacom cycle continues to evolve." In sharp contrast, Beating Wall Street reported: "The collapse of AMZN from a major customer in the third quarter has been one of the primary concerns we have had with AAOI. We continue to believe AAOI will have a difficult time in recovering lost revenue from AMZN at the 100G level because there are several competitors AMZN already uses for 100G, not just AAOI. We are not changing our tune. This is only the beginning of the challenges AAOI could face in coming quarters."~~

~~142. The statements above were materially false and/or misleading because they misrepresented and failed to disclose the following adverse facts pertaining to AOI's business, operations, and prospects, which were known to Defendants or recklessly disregarded by them. Specifically, Defendants made false and/or misleading statements and/or failed to disclose that: (i) they lacked the capacity to transition quickly from 40G to 100G manufacturing as effectively admitted to by the Defendants on the May 2017 Call ("growth rate is not dependent on demand.~~

~~It's dependent on our ability to continue to ramp our manufacturing") and on the August 2017 Call ("the time to actually shift over the production is…about 6 weeks."); (ii) they were taking shortcuts in manufacturing and quality assurance to increase manufacturing yields, lower costs, and maintain high gross margins, as identified by CW1 and resulting in faulty transceivers being sent to Amazon prior to this statement; (iii) they were losing market leadership to increasing competition due to customers adopting the "merchant model," as discussed by merchant model competitor beginning in April of 2017 and resulting in the publicly announced transceiver building alliance between Amazon, Fabrinet and MACOM on June 26, 2017; (iv) they knew that, based on customers' minimum purchase obligations and forecasted requirements, that demand for AOI's 100G transceivers was not going to grow at the rate Defendants represented, because Amazon had committed order amounts and gave purchase forecasts to AOI prior to the beginning of the Class Period; and (v) as a result of the foregoing, the Company's financial statements were materially false and misleading.~~

~~D. The November 7, 2017 Press Release and Earnings Call~~

~~143. On November 7, 2017, AOI issued a press release announcing its third quarter 2017 results (the "November 2017 Press Release"). The November 2017 Press Release confirmed the October 2017 revelation about Amazon's weakening demand, but continued to omit the reasons:~~

> ~~"***While our third quarter results were negatively impacted by lower demand from a large customer***, we continued to experience solid demand from our other large datacenter customers, especially for our 100G CWDM transceivers, and revenue for our CATV products reached a new record," said Dr. Thompson Lin, Applied Optoelectronics, Inc. founder, president and CEO. "***We remain confident in our leadership position in advanced optics.*** We are working diligently to diversify our customer base and are encouraged with the customer response so far, which led to nine design wins in the quarter, including three for our 100G products. ***We also continue to make progress on developing new innovative products and expanding our vertical integration to further extend the gap between AOI and the competition.***"~~

167. Defendants further assured investors that AOI would not be saddled with excess inventory it could not sell because Amazon was going to increase its orders by purchasing any extra inventory and thus, inventory conditions would "normalize" in 2018:

~~144. On the same day after market close, AOI held a conference call to discuss its final earnings results for the third quarter ended September 30, 2017 (the "November 2017 Call"). During the November 2017 Call, the Company reiterated the tremendous $46.2 million loss of Amazon revenue compared to second quarter 2017, but continued to falsely claim the reason was "not specific to AOI."~~

~~145. Specifically, Defendant Murry stated:~~

> ~~As discussed on our pre-announcement call, we saw lower demand overall from one of our large customers. And our revenue visibility in the quarter was impacted by the vendor-owned inventory management model that we employ with this customer. As previously discussed, this VOI program allows the customer to pull inventory from a hub that AOI manages, and revenue is recorded at the time the inventory is pulled. This arrangement can make revenue prediction difficult, but it allows us to maximize sales by ensuring that AOI products are available for customers when needed. For example, AOI has, in the past, been able to meet unexpected demand surges because we had available inventory in the hub for our customer to purchase with little to no lead time.~~ ~~***We continue to have ongoing discussions with this customer and based on those conversations, we believe the disruption in order flow is related to the ongoing transition from 40G to 100G and not specific to AOI.***~~ We continue to have ongoing discussions with this customer and based on those conversations, **we believe the disruption in order flow is related to the ongoing transition from 40G to 100G and not specific to AOI. We believe there was some inventory buildup during the transition and based on conversations with this customer, we believe that inventory conditions will normalize within the first half of next year.**

168. During the Q3 2017 earnings call on November 7, 2017, one analyst directly questioned Defendants' explanations given for the 100G decrease by Amazon, to which Defendant Murry side-stepped responding, and added in follow-up that "we remain a major supplier to all of

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our major customers for their long-reach transceiver needs and intra-datacenter applications. And I'll kind of leave it at that as far as customer positioning":

Simon Matthew Leopold - Raymond James & Associates, Inc., Research Division - Research Analyst

~~146.~~ Great. That's very helpful. Pleased to hear that. The other thing is -- and I'm assuming I've entered formulas correctly, so apology if I botch this. But I think the 100 gig business was down sequentially. So given that the primary explanation is a pause of 40 to 100 gig, I would have imagined you'd sell every piece of 100-gig gear. So maybe help us understand if: one, I did the math correctly; and two, if so, why would 100 gig be down in your third quarter.~~Defendant Murry once again stressed AOI's ability to adapt to transitioning markets:~~

> ~~We believe that one of the strengths of our business model is our ability to flexibly adjust manufacturing to adapt to changing customer requirements, while maintaining industry-leading gross margin. As you know, we serve a customer base that is composed of some of the most dynamic, rapidly evolving companies in the world. As their needs change, we think our ability to adapt along with them gives us a long-term sustainable advantage.~~

~~147. While the sales of 100G products represented an all-time high 56% of datacenter revenues for AOI for the quarter, one analyst noted that 100G sales were actually down sequentially:~~

> ~~The other thing is -- and I'm assuming I've entered formulas correctly, so apology if I botch this. But I think the 100 gig business was down sequentially. So given that the primary explanation is a pause of 40 to 100 gig, I would have imagined you'd sell every piece of 100-gig gear. So maybe help us understand if: one, I did the math correctly; and two, if so, why would 100 gig be down in your third quarter.~~

Stefan J. Murry - Applied Optoelectronics, Inc. - CFO and Chief Strategy Officer

Well, I think we saw an overall decline -- as we mentioned in our prepared remarks, we saw an overall decline in business from one customer. So that included both 40 gig and 100 gig. On the other hand, the other customers that we had, were actually up for 100 gig, so that didn't quite balance out the overall decline from the one customer.

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> ~~Well, I think we saw an overall decline -- as we mentioned in our prepared remarks, we saw an overall decline in business from one customer. So that included both 40 gig and 100 gig.~~ ~~***On the other hand, the other customers that we had, were actually up for 100 gig, so that didn't quite balance out the overall decline from the one customer.***~~

~~148. With AOI's false reassurances, its stock price once again rose by $5.75 per share over its closing price of $37.89 on November 7, 2017. And again, some analysts appeared to believe the false misrepresentations as well, with Northland Securities stating that "[d]espite the top line reduction…our estimates continue to imply a very solid ramp for estimated 100G revs in Q4. . . ."~~

~~149. The statements above were materially false and/or misleading because they misrepresented and failed to disclose the following adverse facts pertaining to the Company's business, operations, and prospects, which were known to Defendants or recklessly disregarded by them. Specifically, Defendants made false and/or misleading statements and/or failed to disclose that: (i) they lacked the capacity to transition quickly from 40G to 100G manufacturing as effectively admitted to by the Defendants on the May 2017 Call ("growth rate is not dependent on demand. It's dependent on our ability to continue to ramp our manufacturing") and on the August 2017 Call ("the time to actually shift over the production is…about 6 weeks."); (ii) they were taking shortcuts in manufacturing and quality assurance to increase manufacturing yields, lower costs, and maintain high gross margins, as identified by CW1 and resulting in faulty transceivers being sent to Amazon prior to this statement; (iii) they were losing market leadership to increasing competition due to customers adopting the "merchant model," as discussed by merchant model competitor beginning in April of 2017 and resulting in the publicly announced transceiver building alliance between Amazon, Fabrinet and MACOM on June 26, 2017; (iv) they knew that, based on customers' minimum purchase obligations and forecasted requirements, that~~

~~demand for AOI's 100G transceivers was not going to grow at the rate Defendants represented, because Amazon had committed order amounts and gave purchase forecasts to AOI prior to the beginning of the Class Period; and (v) as a result of the foregoing, the Company's financial statements were materially false and misleading.~~

169. The above statements were materially false and misleading when made for the reasons stated in paragraphs 122, 148, and 150 above. For those reasons, Defendants knew Amazon was not going to increase its orders in 2018 and the decline in Amazon's demand was not the result of a slower transition from 40G to 100G. Rather, Amazon was going elsewhere to meet its transceiver needs. Thus, inventory conditions would not normalize because Amazon did not intend to resume purchasing AOI products, certainly not at the levels it had been before the Class Period.

170. Despite the serious problems with AOI's vertical integration and manufacturing process, Defendants continued to tout it as giving AOI a competitive advantage that allowed the Company to adapt quickly to shift from 40G to 100G transceivers. On November 14, 2017, AOI, represented by Defendant Murry, gave a presentation at the November 2017 Conference during which he stated:

> And so by having that flexible capacity support, for example, when we've seen rapid shifts from 40 gig to 100 gig or demand changes, **we can adapt to those demand changes relatively quickly compared to a company that had to rely on a long supply chain to be able to react to those changes. And that rapid response that we have also allows us to keep our customers very happy, right. I mean let's face it, they need product and they need it at the right time and the companies that can supply that and react to their changes in demand are generally ones that are going to be the most successful.**
>
> I mean we view our customer base as some of the, let's say, the customers that we have are among the most fast moving high-tech dynamic companies out there in the world and our ability to keep up with their pace of innovation is very important to them both in terms of keeping our manufacturing efficient, but also in terms of meeting their needs. **And so having that vertical integration, having a great deal**

of scale in-house allows us to keep our customers happy and maintain high gross margins in the process.

171. The above statements were materially false and misleading when made for the reasons stated in paragraphs 122-23 above. Moreover, as a result of AOI's faulty manufacturing and quality control, defective transceivers and low yield, AOI was unable to adapt quickly to changes in customer needs or meet customer demand, causing at least Amazon, its largest customer, to reduce its sales from 48% in Q218 to 10% in Q318. Thus, AOI's largest customer was far from "happy" with the Company and AOI was not able to generate "a great deal of scale in-house" as represented.

~~E.~~C. The February 21, 2018 Press Release ~~and Conference Call~~Reveals AOI Had Fallen Behind in Its Transition to 100G Due to "Customer-Specific" Issues

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~~150.~~ On February 21, 2018, AOI issued a press release ~~reporting its~~ announcing the Company's financial results for the fourth quarter and year-~~end~~ended December 31, 2017 ~~financial results~~ (the "February 2018 Press Release~~"). This press release revealed the full financial impact of Amazon's weakening demand.~~

~~"***We achieved revenue in the fourth quarter of $79.9 million, which was slightly below our expectations*** due to lower demand from our datacenter customers as they continue to evolve their network architectures. While our revenue came in slightly below expectations, I am pleased with our ability to continue to generate strong gross margin even in a price sensitive market," said Dr. Thompson Lin, Applied Optoelectronics Inc. founder and CEO. "Even though we see inventory headwinds with one of our customers and the typical seasonality in Q1 due to fewer production days in China because of the Lunar New Year, we continue to expect the second half of 2018 to be stronger than the first half. We believe we have a strong leadership position in advanced optics, and this belief is bolstered by a large purchase commitment that we disclosed earlier today."~~

~~151.~~172. ~~On the same day after market close, AOI held a conference call to discuss its fourth quarter and year-end 2017 financial results (the "~~") and held an earnings call (the

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"February 2018 Call"). ~~During this call, the Defendants revealed the full extent of Amazon's lack of 100G demand. Defendant Murry stated, in relevant part:~~

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173. During the February 2018 Call, the staggering effect of Amazon's 100G purchasing withdrawal was exposed to investors with reported 100G sales dropping from 56% of data center revenues during the third quarter to 35% during the fourth quarter of 2017.

When questioned by analysts about the "skew . . . in favor of 40 gig," Defendant Murry admitted "[i]t's largely customer specific." ~~Our datacenter revenue was $62 million, compared with $68.1 million in Q4 of last year. In the quarter, **_35% of our datacenter revenue was derived from our 100G datacenter products and 58% was from our 40G products_**.~~

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~~152. Additionally, when asked about the reasons as to why there was weakness in the quarter, instead of the false assurance that it was due to~~ Instead of pointing to the 40G to 100G transition~~, Defendant Murry instead~~ as the reason behind shifting demand, when asked whether there was "any particular seasonality that drives the sequential weakness in the fourth quarter," Defendant Murry responded~~:~~

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174. ~~Yes, ,~~ "I can't really comment on the specific customers and their trends. But I think, it's not reasonable to expect that, in any given quarter, there can be a lot of things that affect a particular customer's purchasing ~~patterns~~partners, timing of orders, specific things that they're doing within their datacenters, what type of products they're deploying to mix~~. So there's a lot of things that can affect that on a short-term basis. But longer-term, I think, we've seen strong growth from our hyperscale customers and we would expect to do continue to see their volume growth in the future.~~"

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175. On this news, AOI's shares fell $7.04 from a close of $34.55 on February 21, 2018 to a close of $27.51 on February 22, 2018.

D. The May 8, 2018 Press Release Reveals That AOI Continues to Struggle With the Transition to 100G

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On
~~153. On this news, AOI share price fell by $7.04 per share or over 20% from its previous closing price to close at $27.51 per share on February 22, 2018, causing damage to investors. Craig-Hallum immediately downgraded the Company to sell from hold and slashed its price target from $32 to $17, reporting "[w]e do not have clear signs that AMZN will improve dramatically in the near term…." Piper Jaffray, Needham & Co., Northland Capital Markets, and B. Riley FBR also cut their price targets. Piper Jaffray called the "drop in 100G…alarming as Datacom business should be transitioning from 40G to 100G, not the other way around." Beating Wall Street reacted strongly to AOI's final disclosures, deciding to drop coverage of the Company altogether.~~

176. ~~As a result of Defendants' wrongful acts and omissions, and the precipitous decline in the market value of~~May 8, 2018, AOI issued a press release announcing its first quarter 2018 financial results (the "May 2018 Press Release") reporting that, compared to Q1 2017, total revenue was down $31 million (to $65.2 million); GAAP gross margin was down 3.5% (to 39.6%); GAAP net income was down $17.7 million, or $0.89 per diluted share (to $2.1 million and $0.11); and non-GAAP net income was down $16.2 million, or $0.82 per diluted share (to $5.6 million and $0.28). On the same day, after market close, AOI held a conference call to discuss its first quarter financial results (the "May 2018 Call").

177. During the May 2018 Call, Defendant Murry continued to tout AOI's vertical integration model and boldly projected 100G transceiver sales to "more than double" in the second half of 2018, despite known manufacturing and product issues with the 25G laser chips and 100G transceivers, quality control problems, and low yield:

> We continue to maintain focus on diversifying our customer base and in the quarter had nine design wins, including five for our 100G products. **We believe our cost**

> **leadership, scalable production capacity, in-house component supply and track record of innovation will allow us to be successful in this customer engagements.**
>
> * * *
>
> On a more positive note, market trends were in line with our expectations. We couldn't believe in the first quarter we represent the pattern of a decline there in the demand we have seen over the past few quarters. There is an inventory condition has begun to normalize with our expectation [being] that [inventory levels] will return to more normal level later this year. **We also currently expect 100G volumes to more than double in the second half of the year over the first half as we deliver on the committed orders we announced last quarter.** We also met good profit in diversifying our customer base with nine design wins, including five for our 100G products and some of this design wins were with new customers.

178. The above statements were materially false and misleading when made for the reasons stated in paragraphs 122 and 150 above. Thus, AOI's 100G transceiver sales were going to ***decline***. Indeed, AOI's Q1 2018 100G sales were far ***lower*** than 100G sales in Q1, Q2, and Q3 2017.

179. On August 7, 2018, AOI issued a press release announcing the Company's second quarter 2018 financial results (the "August 2018 Press Release"). The August 2018 Press Release announced yet another quarter of disappointing results, with revenue declining from $117.4 million in the second quarter 2017 to $87.8 million in the second quarter 2018. The August 2018 Press Release stated that the company expected third quarter 2018 revenue to be in the range of $82 million to $92 million.

180. On the earnings call that occurred that day after market close (the "August 2018 Call"), Defendant Lin reiterated the importance of vertical integration to the Company's ~~securities, Plaintiff and other Class members have suffered~~success, without disclosing the endemic problems with the laser chips manufactured in AOI's facilities. He stated,

> **We believe the new innovative technologies and techniques that we have developed position us well to build on our momentum. The cost advantage, time to market and flexibility afforded us through our vertical integration is a**

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significant ~~losses and damages.~~**factor in our success and sets us apart from the competition.**

181. The above statements were materially false and misleading when made for the reasons set forth in paragraphs 122-23 above.

182. Also during the August 2018 Call, Loop Capital Markets analyst James Kisner specifically asked the Individual Defendants about the threat of the white box model (*i.e.*, the merchant model), to which Defendant Lin provided a boastful and misleading response:

> **Q: KISNER**: Okay. And also this has been a topic in the past about your customers, you're kind of in run going to the manufacturing partners and making their own white box transceivers in this quarter, obviously, I'm sure you saw that the competitor, another player in this space talked about that becoming a more serious effort again after kind of head fate [*sic*] 18 months ago. I'm just wondering, if you give any updated thoughts on that, is that something that you're going to be worried about at all? Just any updated thoughts on kind of white box transceiver idea would be helpful. Thanks
>
> **A: LIN**: And I can see something missing in this model is not radio [*sic* throughout]. Who is responsible for the year loss for the automation? For the manufacturing processing improvement? Who's responsible for the quality issue? That's not clear. I think there's still many issues in this model. **I don't seeing it really work, all right? And I don't believe there comes a manufacturer like people in Taiwan. I don't believe they will be responsible for this kind of job, so who will be responsible**? Will it be the end customer responsible for this? But I don't think really do they have the right people to take care of this issue because it's difficult to have manpower. It's not easy. **And AOI is very quick, we always spent many years. So we know how to do automation. We know how to improve the process. This is very important.** The year could be very bit different between company from 72% to 95%, there's a huge difference, so who is responsible? So there's many questions that need to be answered.

183. The above statements were materially false and misleading when made for the reasons set forth in paragraph 148 above.

E. The September 27 and 2018 Admissions That AOI Was Experiencing Issues With Its 25G Laser Chips, Forcing AOI to Suspend Shipments to Facebook

184. On September 27, 2018, analyst Loop Capital Markets downgraded its recommendation from Hold to Sell following Loop's "industry checks suggesting that: 1) AAOI is having product quality issues in 100G CWDM4 transceivers, and 2) the pricing environment for 100G data center optics remains very tough." Loop Capital Markets lowered its price target from $45 to $20.

185. On the date of Loop Capital Market's announcement, AOI's share price fell from a close of $31.34 on September 26, 2018 to $28.36 on September 27, 2018, a drop of 9.5%, on heavy trading volume.

186. The following day, on the morning of September 28, 2018 AOI issued a press release (filed on Form 8-K) in which it stated that the Company had lowered 3Q 2018 revenue guidance from between $82 million and $92 million to between $55 million and $58 million.

187. In the same press release, Defendant Lin admitted that

> During the third quarter, ***we identified an issue with a small percentage of 25G lasers*** within a specific customer environment. Consistent with AOI's commitment to supreme product quality and customer support, ***we mutually agreed with the customer to temporarily suspend shipments of certain transceivers utilizing these lasers*** while we worked to gain a deeper understanding of the scope of the issue and implement a solution. We have since determined that less than one percent of these lasers were subject to this issue, we have enacted a solution and with the agreement of the customer, resumed shipments.

188. Following the analyst's revelation and Defendants' admission, AOI's share price fell from a close of $28.36 on September 27, 2018 to $24.66 on September 28, 2018, a drop of 13%, on heavy trading volume. By Monday, October 1, the share price had fallen to $24.00. The share price continued to plummet until it reached $23.36 on October 2, 2018, a drop of 17.6% from its September 27, 2018 close.

189. Other analysts were quick to investigate the cause of the significant shortfall in projected earnings. An analyst from Cowen and Company cast a skeptical eye on AOI's explanation:

> Taking AAOI's 9/28/18 press release at face value, the issue appears to be transitory in nature--isolated to one customer and already to have been addressed. That said, to be clear, ***AAOI's assertions notwithstanding, its press release raises some unanswered questions***. . . Admittedly, we are giving AAOI the benefit of the doubt. ***As for the unanswered questions, in short, was the issue specific to a dedicated production line for the customer in question, which, based on the size of the expected shortfall—almost $40M—we believe to be [Facebook]? We assume the answer is yes[.] Even assuming AAOI has a dedicated 25G laser and 100G CWDM4 module production line for FB, a related question is what, if anything, is different in AAOI's production line for 25G lasers and 100G CWDM4 modules for FB from its 25G laser and 100G CWDM4 production lines for other customers? [O]therwise, we do not understand how AAOI can assert that it is an issue isolated to a single customer. 25G lasers go into 100G CWDM4 modules, which are used, to varying extent, by other AAOI customers beyond just FB. And if not—and perhaps even if so—the thought arises that AMZN, MSFT and other existing and prospective customers would at a minimum be concerned as to prospective issues with their AAOI sourced transceivers.***

190. With respect to Cowen's question as to why there would be defects only in the laser chips were deployed across many products—and not just a small percentage of those shipped to Facebook in 3Q 2018—Cowen was right to be concerned. Indeed, as Defendant Murry stated in the August 3, 2017 earnings call, the hundreds of thousands or millions of laser chips being manufactured by AOI "***will continue to be leveraged across our product portfolio***."

191. The Cowen analyst also stated that, based on the 3Q18 revenue shortfall, it had lowered not only the 3Q18 forecast, but also its "4Q18 and CY19-20 forecasts entirely driven in our FB and 100G revenue forecasts." Furthermore, the Cowen analyst stated,

> **We also have reduced our 3Q18 gross and operating margin forecasts given AAOI's fully vertically integrated manufacturing model and attending likely adverse impact of the revenue shortfall**. We have decreased our total revenue and PF (ex-ESC) EPS forecasts as follows: CY18 by ($47M)/($0.78) to $300M/$1.75; CY19 by ($11M)/($0.10) to $405M/$3.53; and CY20 by ($13M)/($0.12) to

> $449M/$4.03.Our decreased Data Center transceiver revenue forecast drives all of our decreased total revenue forecast.

192. Also on September 28, 2018, Loop Capital Markets issued a follow-up report, entitled "We Don't Think They Are Out of the Woods Yet; Maintain Sell Rating," in which he stated that AOI's disclosure of laser chip problems was "[c]onsistent with our downgrade report yesterday." AOI's disclosure did not change Loop's "sell" rating.

> **Negative Pre-Announcement**. This morning, AAOI negatively pre-announced 3Q results. Consistent with our downgrade report yesterday (link here), the company stated that a laser product quality issue led to a delay of 3Q shipments. The company now expects 3Q revenue of $55-$58 million versus prior guidance of $82-$92 million. The company stated that the issue only affected a small percentage of 25G lasers in a specific customer environment and that the company has enacted a solution and resumed shipments.
>
> **We Remain Cautious; Maintaining Sell Rating**. While AAOI is indicating that this issue is largely resolved, the company didn't provide any key financial details on 3Q results such as gross margin, nor did the company provide an outlook for 4Q. At this point we're wondering if the company might have to make pricing concessions to make up for the issue, and it's also possible that other customers could change their purchasing behavior as result of this development. We believe investors should exercise caution. We're maintaining our Sell rating.

193. The same day, Northland Capital Markets noted that, among the myriad "risks in the 100G Cloud Datacom market" it had identified, "25G laser product quality at AAOI was not among them." Northland stated that "given the highly competitive environment at FB and elsewhere AAOI is in danger of share loss to INTC and Innolight." Northland further stressed that the quality control problems at AOI could strengthen the competitive position of other market participants, including MACOM:

> ***Given that internal control over the laser/manufacturing processes has been one of the main selling points for vertical integration, we believe AAOI[']s continued struggles make the emerging outsource/whitebox model ramping at MTSI [MACOM] in 2H18 more attractive to Cloud providers.*** *We* also believe these issues put a premium of 25G datacom laser quality with OCLR [Oclaro Inc.] at the top of the pack from a merchant standpoint and one of several reasons to own LITE [Lumentum Holdings Inc.] at current levels heading out of the show. Finally, we

> see potential benefits for FNSR [Finisar Corporation] as the industry's largest datacom optics supplier despite no exposure to date at FB. Finally, INTC noted at the ECOC show a 100G datacom transceiver run rate that has eclipsed 1MM units, adding additional competitive intensity to the mix at FB.

194. On September 28, 2018, an analyst at Piper Jaffray reiterated its "neutral" rating for AOI, based on the analyst's belief that the laser chip issue "was a company specific quality problem." The analyst stated [his] belief that

> Applied has built a solid business with industry leading margins supplying quality optical transceivers to customers like Facebook and Amazon, but ***we have recently been neutral on the stock given the high degree of customer concentration risk and these results exemplify these concerns***.

195. Both Cowen and Northland Capital Markets stated on September 28, 2018 their view that the quality issue with 25G lasers affected Facebook based on the size of the shortfall in Q3 earnings against the Company's earlier forecast. A Piper Jaffray analyst stated that day his belief that the customer was either Facebook or Amazon.

196. The details concerning the extent of the failure of AOI's vertically integrated manufacturing platform, and its impact on AOI's biggest customer relationships, have continued to emerge.

VII. POST-CLASS PERIOD EVENTS

197. On November 1, 2018, Jun Zhang of Rosenblatt Securities reported that AOI's laser chip issue at Facebook was ongoing and, on that basis, slashed revenue projections for Q4 2018 from $96 million to $30 million due to the expected continuing loss of Facebook sales.

198. On November 7, 2018, Defendants Released the November 2018 Press Release and held the November 2018 Call concerning Q3 2018 earnings. On the call, Defendant Lin confirmed the Company's belated September 28, 2018 admission that AOI had experienced

> ***[A]n issue we identified with a small percentage of 25G lasers, which led to a temporary delay in 1 of digital receiver shipments to a datacenter customer***. As

> we work to troubleshoot the issues, we enact a solution quickly and with agreement of data customer, resumed shipments. ***The delay, however, resulted in softer-than-expected datacenter revenue of $39 million.*** We continue to have active engagement with this customer and believe we have a solid relationship.

199. Defendant Murry admitted that the "issue" that AOI had to "***troubleshoot***" for the datacenter customer (which is Facebook) was a "***quality issue***." This "quality issue" prevented AOI from "complet[ing] the manufacturing process" for certain goods during the quarter. He also alerted investors that AOI would suffer decreased production capacity and increased costs in Q4 due to

> ***[A]dditional product testing sets that we have implemented in order to further reassure our customer base that we have eliminated any potentially troublesome laser devices from our inventory***, including work in process. Most of these additional testing steps are temporary measures to screen existing inventory. In addition to the reduced production capacity, these costs will also temporarily increase our cost of goods sold and thus negatively impact our gross margin in Q4.

200. Defendant Murry sought to downplay any potential problem with AOI's customer relationships by stating that he believed the quality issued had not "affected our business with other customers," that AOI "continue[s] to have ongoing discussions and active engagement" with Facebook and "[w]e currently expect demand from this customer [Facebook] in Q4 to meet our earlier expectations." However, when pressed about the health of the Facebook customer relationship, Defendant Murry did not emphasize the soundness of the products sent to its biggest customer, but rather conveyed that "what's really important for us is continuing to diversify our customer base, right?"

201. Moreover, Defendants admitted (as analysts ascertained from the September 28, 2018 admissions) that the undisclosed (but known to Defendants) "quality issue" affecting 25G laser chips in transceivers sent to data center customers had impacted nearly every measure of the Company's financial health.

- Revenue of $56.4 million was ***over $24 million below AOI's originally forecasted Q3 outlook*** due to the suspended shipments.

- ***Gross margin declined from 40.4% to 34%,*** "primarily due to capacity underutilization while we worked to resolve the inventory issue we experienced this quarter."

- AOI had been forced to take "***about $1.5 million of inventory write-downs related to the quality issue.***"

- ***Operating expenses increased to 40.4% of revenue compared to 23.7% of revenue*** in the prior quarter "mostly due to higher R&D expense incurred to troubleshoot and resolve the issue we experienced in the quarter."

- "[I]t's reasonable to believe that ***some of the business [lost by AOI] went to a competitor in the quarter***."

202. Although Defendants took pains to treat the "quality problem" as a customer- and product-specific and temporally isolated incident, the ***prospective*** financial impact on the Company belied those reassurances. As Defendant Murry stated,

- AOI projected a fourth-quarter revenue outlook of between $56 million and $63 million, which, if achieved, would result in total 2018 revenues of approximately $265 million, ***a 31% drop from 2017 revenues*** of $382.3 million.

- AOI would probably ***fall short of projected 2018 Facebook revenue by $35 million***, and, as to AOI's future relationship with Facebook following Q4 2018, all Defendant Murry could say was that "***we're still working with them on the time periods [after] that***."

- More inventory write downs were likely if testing results were negative: "***I wouldn't expect huge inventory adjustments in the fourth quarter, but a lot of that depends on the testing that we have ongoing at this point.***"

- The "additional testing steps" would negatively affect gross margin in Q4, but Defendant Murry stated only that "we think that we can get back to that 40% gross margin target sometime in the future."

- Production capacity in Q4 was expected to continue to lag demand.

~~VII.~~VIII. ADDITIONAL FACTS PROBATIVE OF SCIENTER

A. Defendant' Belatedly Admitted That the Decline in AOI's Sales to Amazon and Facebook Were the Result of AOI's Defective 25G Laser Chips Causing Low Yields, Production Shortfalls, and Latent Defects in AOI's 100G Transceivers

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203. On September 28, 2018, Defendants finally admitted (after being forced to do so by a Loop Capital analyst report) that the real reason for AOI's decaying sales was that AOI's 25G laser ships that make up its 100G transceivers that it shopped to its premier customers, Amazon and Facebook, were defective. Thus, it was not a slow transition from 40G to 100G transceivers or changes in the way a key customer architect their network that caused the significant drop in sales, as Defendants were leading investors to believe.

204. These manufacturing and chip failures were so grave that AOI was forced to suspend shipments to Facebook in Q3 2018, indefinitely, and lost the bulk of its revenue from Amazon and Facebook by the end of the Class Period. This admission demonstrates that the laser chip manufacturing problems affecting AOI in 2017 and 2018 (as described by CW2 and CW3) continued to plague the Company throughout the Class Period. Moreover, this admission came only a few weeks after AOI falsely and/or misleadingly informed investors on August 8, 2018 in its 2Q 2018 10-Q that AOI sales were sagging "*due to changes in the way [a key customer] architect[s] their network*" and referring to the risk that "manufacturing problems" that could cause AOI "to lose sales and damage our customer relationships," without disclosing that ***the risk had already materialized***.

B. Defendants Were Aware of the Production Issues Plaguing the 100G Transceivers Through Weekly R&D Meetings Discussing "Yields," Reliability Issues, and Other Key Metrics

205. According to CW2, the Individual Defendants and other senior executives at AOI were constantly monitoring all aspects of the Company's operations. Many of the managers at AOI, CW2 stated, are "yes men" and "the CEO [Lin] rules with fear," and "would react pretty big to even the littlest problems," such that even "small problem would be blown out of proportion."

206. Defendant Lin was fully aware of any production issues with the optical transceivers, and the component laser chips for its 100G products because his key deputies attended (and reported back to Lin concerning) the weekly Wednesday R&D meetings held at 4:30 pm Central Time. According to CW2, the main topics of discussion at these weekly meetings throughout the Class Period always included production capacity and shortfalls and low yield for the 100G transceiver About 20 people attended these meetings, including various product managers, engineers, senior engineers. Senior participants included VP of R&D Jun Zheng, who ran the meeting; Huanlin Zhang, the senior R&D manager responsible for laser chips; I Lung (Morris) Ho, the Senior R&D Engineer in charge of packaging; Fred (Hung-Lun) Chang, the SVP of the Optical Component Business Unit; and , and Chan Chih (David) Chen, a special assistant to Defendant Lin and Assistant VP, Sales & Marketing, who was also in charge of corporate quality control and quality assurance. At the time of these meetings, all participants reported to Chen and, in addition, according to CW2, Chen provided Defendant Lin with updates after the weekly Wednesday R&D meetings.

207. Additionally, CW2 stated that Defendant Lin received monthly status reports from all R&D managers about transceiver manufacturing issues during the Class Period, including with respect to AOI's struggle to increase laser chip manufacturing yields

208. Furthermore, at the Wednesday meetings in Texas, the managers (or their lead engineers) for chips, packaging, and transceivers would each make a PowerPoint presentation. Each manager uploaded the PowerPoint presentations they gave at the meetings into a "projects folder" on the shared network drive, which was accessible by the Individual Defendants and anyone in the R&D department. An Excel file containing notes on what was discussed at the meetings was prepared for each meeting and placed on the same shared network drive.

209. All R&D managers and project managers from the Texas facility also conferenced with the teams in Taiwan, and likely the People's Republic of China, once a week as well. At these meetings, according to CW2, there were discussions about production capacity, yields for the optical modules and transceivers, production issues and shortfalls.

210. Furthermore, Jun Zheng, the VP of the R&D Department in Texas, helped prepare Defendants Lin and Murry for earnings calls by providing them with information presented during these meetings. Thus, Defendants were aware of the manufacturing problems that were having a severe negative effect on AOI's 100G transceiver yields.

C. Defendants Were Aware of Amazon and Facebook's Declining Demand Through Projections Reported in the SAP System

211. The Individual Defendants had access to SAP, the Company-wide enterprise resource planning program that includes customer relationship management tools that track customer forecasts and purchases. As described above, Company salespeople entered into the SAP system the annual, periodic, and updated forecasts provided by AOI's main customers, which informed AOI of the type and volume of transceivers the customers would require in the future. By reviewing this data and reports generated from this data, the Individual Defendants knew or recklessly disregarded the fact that the forecasts and actual purchases made by Amazon for 100G transceivers fell far short of what Defendants had been priming investors to expect in the next quarter.

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~~A.~~D. AOI's Data Center Business Is Its Most Important

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~~155.~~212. Defendants have repeatedly underscored the data center market as AOI's most important and the primary driver of the Company's revenues:

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~~a.~~ • "Our revenue growth in the quarter was driven by continued strong demand for our market-leading datacenter products…." Defendant Lin, February 2017 Call.

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~~b.~~• "Demand for our market-leading datacenter products continued to drive our exciting result this quarter." Defendant Lin, May 2017 Call.

~~c.~~• "Total revenue for the first quarter grew 91% year-over-year to reach another record $96.2 million. This was primarily driven by continued demand for our market-leading datacenter products." Defendant Murry, May 2017 Call.

~~d.~~• "Our results were driven by strong demand for our datacenter products…." Defendant Lin, August 2017 Call.

~~156.~~213. The Company and the Individual Defendants also specifically recognized Amazon's major contribution and importance to their data center market and revenues, breaking out the percentage of revenue attributed to Amazon each quarter and stating, for example: "So, when we look at our heavy concentration to Amazon, that certainly goes a long way towards explaining why we're so heavily concentrated there. They are just much larger than most of the other data center operators."

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~~157.~~214. ~~As~~Defendants stated numerous times ~~throughout~~during the Class Period ~~and reiterated in the 2016 Form 10-K, the Defendants~~ that they had visibility into its customers' demand, including, for example, in the 2016 Form 10-K:

> Our sales model focuses on direct engagement and close coordination with our customers to determine product design, qualifications, performance and price. . . . Throughout our sales cycle, we work closely with our customers to qualify our products into their product lines. As a result, we strive to build strategic and long-lasting customer relationships and deliver products that are customized to our customers' requirements.

~~160.~~215. Furthermore, during the Class Period, the Individual Defendants were AOI's most senior executives with direct control and supervision over its business, operations, and public statements. By virtue of their executive positions, the Individual Defendants knew non-

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public material facts concerning AOI's data center customers, which was the Company's core business.

E. Motive to Conceal Product Defects

~~**B.**~~ Defendants were motivated to ~~**Defendants Were Aware of Amazon's Declining Demand Through Projections Reported in the SAP System**~~

216. ~~The Individual Defendants had access to SAP, the company~~deceive the public about the endemic defects in 25G laser chips and low yields for 100G transceivers because they needed to retain their three biggest customers—Amazon, Facebook, and Microsoft—and to attract new ones (including a Chinese datacenter and non-datacenter customers). But they knew that, inevitably, the existing customers' transceivers would fail (and did fail) and that those customers would consequently look elsewhere for a better supply of more reliable 100G transceivers.

217. Indeed, after the Company's sales to Amazon plummeted beginning in Q2 2017, Defendants told investors to put their hopes in large volumes of future sales from Facebook. But, as Defendants knew from the terms of the Supply Agreement and Master Purchase Agreement with Facebook, the social media giant imposed onerous terms on its suppliers, ones demanding reliable delivery of flawless products—which, as Defendants learned from their experience with Amazon, AOI was unable to provide. Defendants were thus highly motivated to deceive the public about problems with its supposedly distinctive vertically integrated model, so that customers would not forego AOI's products and look elsewhere—including to merchant model vendors—to obtain transceivers, and thereby accelerate the decline in AOI's fortunes that Defendants, throughout the Class Period, had been so desperate to hide.

~~161.~~1. ~~-wide enterprise resource planning program that includes customer relationship management tools that track customer forecasts and purchases. As described above, Company salespeople entered into the SAP system the annual, periodic, and updated forecasts provided by~~

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~~AOI's main customers, which informed AOI of the type and volume of transceivers the customers would require in the future. By reviewing this data and reports generated from this data, the Individual Defendants knew or recklessly disregarded the fact that the forecasts and actual purchases made by Amazon for 100G transceivers fell far short of what Defendants had been priming investors to expect in the next quarter.~~

~~C. Defendants Were Aware of the Production Issues Plaguing the 100G Transceivers Through Weekly Meetings Discussing "Yields" and Other Key Metrics~~

~~162. Defendant Lin was fully aware of any production issues with the optical transceivers, and the component laser chips. According to CW1, Defendant Lin received monthly reports directly from all of the R&D managers. Additionally, the notes from the weekly meetings held at the Texas office between the R&D managers, product managers, senior engineers and David Chen (the special assistant to Defendant Lin in charge of corporate quality assurance) were available on the shared network drive and accessible by the Defendants.~~

~~163. All R&D managers and project managers from the Texas facility also conferenced with the teams in Taiwan, and likely China, once a week as well. At these meetings, according to the CWs, there were discussions about production capacity, yields for the optical modules and transceivers, production issues and shortfalls. The VP of R&D department in Texas attended these meetings and reported on yields directly to Defendant Lin prior to the issuance of earnings reports.~~

~~D. Insider Stock Sales~~

~~164. Defendants were motivated to engage in the alleged fraudulent scheme and issue materially false and misleading statements and/or omit material facts in order to inflate AOI's securities price and maximize individual profits through insider trading.~~

~~165. As reflected in the chart below, Defendant Murry sold 11,498 shares of Applied Optoelectronics stock over the course of the Class Period for proceeds of $630,468.77.~~

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~~**Date**~~	~~**Shares Sold**~~	~~**Proceeds**~~	~~**10b5-1 Plan**~~
~~3/13/2017~~	~~334~~	~~$17,018.64~~	~~No~~
~~3/13/2017~~	~~666~~	~~$33,935.36~~	~~No~~
~~5/18/2017~~	~~3,168~~	~~$201,185.11~~	~~No~~
~~8/17/2017~~	~~3,050~~	~~$214,138.06~~	~~Yes (Entered into 5/31/2017)~~
~~12/18/2017~~	~~3,000~~	~~$117,510.00~~	~~Yes (Entered into 11/15/2017)~~
~~1/16/2018~~	~~1,280~~	~~$46,681.60~~	~~Yes (Entered into 11/15/2017)~~
~~**TOTAL**~~	~~**11,498**~~	~~**$630,468.77**~~	

~~166. As reflected in the chart, these sales were either not traded pursuant to a Rule 10b5-1 trading plan, or traded pursuant to plans entered into at suspicious times ***during the Class Period***.~~

~~167. Defendant Lin also profited from his sales during the Class Period, garnering proceeds of over $729,000 (making a profit of approximately $642,000).~~

~~**Date**~~	~~**Shares Sold**~~	~~**Proceeds**~~	~~**10b5-1 Plan**~~
~~5/11/2017~~	~~8.586~~	~~$566,676.00~~	~~No~~
~~11/16/2017~~	~~1,300~~	~~$58,890.00~~	~~No~~
~~11/20/2017~~	~~2,300~~	~~$103,960.00~~	~~No~~
~~**TOTAL**~~	~~**12,186**~~	~~**$729,526.00**~~	

~~168. Furthermore, the timing of these sales was suspicious with a large portion of the stock being sold prior to the first partial disclosure on August 3, 2017, and each Individual Defendants' largest sale occurring shortly after the positive first quarter 2017 earnings announcement (neither according to a Rule 10b5-1 trading plan). The Defendants' other main~~

~~sales occurred after the market had absorbed the second partial disclosure on October 12, 2017, but well before the Defendants' final revelations on February 21, 2018.~~

~~VIII.~~IX. LOSS CAUSATION

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~~169.~~218. During the Class Period, as detailed herein, Defendants engaged in a scheme to deceive the market and a course of conduct that artificially inflated the Company's stock price during the Class Period, and operated as a fraud or deceit on acquirers of the Company's securities.

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~~170.~~219. As detailed above, when the truth about AOI's manufacturing problems and loss of customer demand from Amazon and then Facebook was revealed, the value of the Company's securities declined precipitously as the prior artificial inflation no longer propped up its stock price. The decline in AOI's share price was a direct result of the nature and extent of ~~Defendants'~~Defendants' fraud finally being revealed to investors and the market. The timing and magnitude of the securities' price decline negates any inference that the loss suffered by Plaintiff and other members of the Class was caused by changed market conditions, macroeconomic or industry factors or Company-specific facts unrelated to the Defendants' fraudulent conduct. The economic loss, i.e., damages, suffered by Plaintiff and other Class members was a direct result of ~~Defendants'~~Defendants' fraudulent scheme to artificially inflate the ~~Company's~~Company's stock price and the subsequent significant decline in the value of the ~~Company's~~Company's share~~,~~ price when ~~Defendants'~~Defendants' prior misrepresentations and other fraudulent conduct was revealed.

~~171.~~220. The artificial inflation created by Defendants' misrepresentations and omissions was removed through a series of partial corrective disclosures by ~~Defendant~~Defendants starting with their announcement on August 3, 2017 that one of their largest data center customers —Amazon—would be decreasing its demand for the Company's 40 ~~Gbps~~GG products. The market was surprised by this disclosure and reacted swiftly. AOI's stock price declined 34% from

a close of $97.99 per share on August 3, 2017, to close at $64.60 per share on August 4, 2017, on heavier than usual trading volume of more than 17 million shares.

~~172.~~221. This disclosure~~, however, failed to fully reveal~~ would be the first in a series of many disclosures correcting Defendants' prior misrepresentations and omissions concerning the Company's manufacturing capacity~~ and~~ , manufacturing process, customer demand~~. Defendants continued to mislead investors by stating that Amazon would only be decreasing its demand of 40G~~ , and known manufacturing problems with products~~, that they had only recently been informed of this decision by Amazon~~ purchased and ~~that there were still "meaningful 100 gig sales with all 3 of [their]~~delivered to AOI's two largest ~~datacenter~~ customers~~."~~ — Amazon and Facebook.

~~173.~~222. On October 12, 2017, the ~~risks concealed by~~falsity of Defendants' ~~materially false and misleading~~ statements and omissions further materialized with the Company's preliminary financial results for the third quarter of 2017 ending September 30, 2017, when AOI revealed that Amazon's demand had dropped to a mere 10% of the Company's revenues, that Amazon's demand for both 40G and 100G products had decreased, and that despite previous claims otherwise, the vendor warehouse model did not allow AOI to accurately predict revenues from the customer. Following this news, AOI's stock price dropped from a closing price of $58.84 on October 12, 2017, to a closing price of $47.01 on October 13, 2017, over 20%, on heavier than normal trading volume of almost 8.7 million shares.

~~174. Again, this disclosure, failed to fully reveal Defendants' misrepresentations and omissions concerning the Company's manufacturing capacity and customer demand. Defendants continued to mislead investors by stating "we don't believe that this disruption in the order flow is related to anything AOI-specific. It's related to an ongoing transition from 40G to 100G."~~

~~175.~~223. ~~Finally, on~~On February 21, 2018, ~~the full extent of Defendants' false and misleading statements and omissions materialized with Defendants revelation that it had fallen behind in~~ Defendants' disclosed that its transition from 40G to 100G had been hampered due to "customer-specific" issues, with 100G data center revenues decreasing from 56% of those revenues during the third quarter of 2017 to 35% during the fourth quarter of 2017. On this news, AOI's stock price fell over 20% from a closing price of $34.55 on February 21, 2018 to a closing price of $27.51 on February 22, 2018.

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224. On September 27, 2018, analyst Loop Capital Markets reported that "industry checks suggested that: 1) AAOI is having product quality issues in 100G CWDM4 transceivers, and 2) the pricing environment for 100g data center optics remains very tough" further revealing that AOI was experiencing undisclosed product quality issues that would devastate its expected revenue and deteriorate its relationship with another one of its large customers.

225. The next day, on September 28, 2018 AOI issued a press release (filed on Form 8-K) in which the Company admitted that AOI had issues with its 25G laser ships and, accordingly, Facebook had suspended shipments. AOI also lowered 3Q 2018 revenue from $82 million and $92 million to between $55 million and $58 million. All told, from September 26, 2018 to October 1, 2018 the value of AOI's stock plummeted from $31.34 to $24.00—***a drop of over 23%***—on heavy trading volume.

~~176.~~226. At all relevant times, Defendants' materially false and misleading statements or omissions alleged herein directly or proximately caused the damages suffered by the Plaintiff and other Class members. Those statements were materially false and misleading through their failure to disclose a true and accurate picture of AOI's manufacturing capacity, existing problems with its manufacturing, known or inevitable product failures, and corresponding

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reductions in customer demand, as alleged herein. Throughout the Class Period, Defendants publicly issued materially false and misleading statements and omitted material facts necessary to make Defendants' statements not false or misleading, causing AOI's securities to be artificially inflated. Plaintiff and other Class members purchased AOI's securities at those artificially inflated prices, causing them to suffer the damages complained of herein.

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~~I.~~X. PRESUMPTION OF RELIANCE; FRAUD-ON-THE-MARKET

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~~177.~~227. At all relevant times, the market for Applied Optoelectronics Securities was an efficient market for the following reasons, among others:

(a) AOI Securities met the requirements for listing, and were listed and actively traded on the NASDAQ, a highly efficient market;

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(b) During the Class Period, AOI Securities were actively traded, demonstrating a strong presumption of an efficient market;

(c) As a regulated issuer, AOI filed with the SEC periodic public reports during the Class Period;

(d) AOI regularly communicated with public investors via established market communication mechanisms;

(e) AOI was followed by securities analysts employed by major brokerage firms who wrote reports that were distributed to the sales force and certain customers of brokerage firms during the Class Period. Each of these reports was publicly available and entered the public marketplace; and

(f) Unexpected material news about AOI was rapidly reflected in and incorporated into the Company's stock price during the Class Period.

~~178.~~228. As a result of the foregoing, the market for AOI Securities promptly digested current information regarding AOI from all publicly available sources and reflected such information in AOI's stock price. Under these circumstances, all purchasers of Applied Optoelectronics Securities during the Class Period suffered similar injury through their purchase of AOI's Securities at artificially inflated prices, and a presumption of reliance applies.

~~179.~~229. Alternatively, reliance need not be proven in this action because the action involves omissions and deficient disclosures. Positive proof of reliance is not a prerequisite to recovery pursuant to ruling of the United States Supreme Court in *Affiliated Ute Citizens of Utah v. United States*, 406 U.S. 128 (1972). All that is necessary is that the facts withheld be material in the sense that a reasonable investor might have considered the omitted information important in deciding whether to buy or sell the subject security. Here, the facts withheld are material because an investor would have considered the Company's financials and adequacy of internal controls over financial reporting when deciding whether to purchase and/or sell stock in AOI.

~~II.~~XI. INAPPLICABILITY OF THE STATUTORY SAFE HARBOR AND BESPEAKS CAUTION DOCTRINE

~~180.~~230. The statutory safe harbor provided for forward-looking statements under certain circumstances does not apply to any of the false and misleading statements alleged in this Complaint. The statements alleged to be false and misleading herein all relate to then-existing facts and conditions.

~~181.~~231. To the extent certain of the statements alleged to be misleading or inaccurate may be characterized as forward looking, they were not identified as "forward-looking statements" when made and there were no meaningful cautionary language identifying important factors that could cause actual results to differ materially from those in the purportedly forward-looking statements.

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~~182.~~232. To the extent certain that the statutory safe harbor is determined to apply to any forward-looking statements pleaded herein, Defendants are also liable for those false or misleading "forward-looking statements" pleaded because, at the time each "forward-looking statement" was made, the speaker had actual knowledge that the "forward-looking statement" was false or misleading and/or the "forward-looking statement" was authorized and/or approved by an executive officer of AOI who knew that the "forward-looking statement" was false when made. Alternatively, none of the historic or present-tense statements made by the defendants were assumptions underlying or relating to any plan, projection, or statement of future economic performance, as they were not stated to be such assumptions underlying or relating to any projection or statement of future economic performance when made, nor were any of the projections or forecasts made by the defendants expressly related to or stated to be dependent on those historic or present-tense statements when made.

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~~III.~~XII. CLASS ACTION ALLEGATIONS

~~183.~~233. Plaintiff brings this action as a class action pursuant to Federal Rules of Civil Procedure 23(a) and (b)(3) on behalf of a Class, consisting of all individuals and entities who purchased or otherwise acquired Applied Optoelectronics Securities on the public market during the Class Period, and were damaged, excluding the Company and its subsidiaries and affiliates, any their respective officers and directors at all relevant times, the Individual Defendants and each of their immediate family members, legal representatives, heirs, successors or assigns, and any entity in which any of the Defendants have or had a controlling interest (the "Class").

~~184.~~234. The members of the Class are so numerous that joinder of all members is impracticable. Throughout the Class Period, AOI securities were actively traded on the NASDAQ. While the exact number of Class members is unknown to Plaintiff at this time and can be

ascertained only through appropriate discovery, Plaintiff believes that there are hundreds or thousands of members in the proposed Class. Record owners and other members of the Class may be identified from records maintained by AOI or its transfer agent and may be notified of the pendency of this action by mail, using the form of notice similar to that customarily used in securities class actions. Upon information and belief, these shares are held by thousands if not millions of individuals located geographically throughout the country and possibly the world. Joinder would be highly impracticable.

~~185.~~235. Plaintiff's claims are typical of the claims of the members of the Class as all members of the Class are similarly affected by the Defendants' respective wrongful conduct in violation of the federal laws complained of herein.

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~~186.~~236. Plaintiff will fairly and adequately protect the interests of the members of the Class and has retained counsel competent and experienced in class and securities litigation. Plaintiff has no interests antagonistic to or in conflict with those of the Class.

~~187.~~237. Common questions of law and fact exist as to all members of the Class and predominate over any questions solely affecting individual members of the Class. Among the questions of law and fact common to the Class are:

(a) whether the federal securities laws were violated by the defendants' respective acts as alleged herein;

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(b) whether statements made by the Defendants to the investing public during the Class Period misrepresented material facts, or omitted material facts necessary in order to make the statements made, in light of the circumstances under which they were made, not misleading;

(c) whether the defendants acted knowingly or with deliberate recklessness in

issuing false and misleading statements and/or omissions;

(d) whether the price of AOI securities during the Class Period was artificially inflated because of the defendants' conduct complained of herein; and

(e) whether the members of the Class have sustained damages and, if so, what is the proper measure of damages.

~~188.~~238. A class action is superior to all other available methods for the fair and efficient adjudication of this controversy since joinder of all members is impracticable. Furthermore, as the damages suffered by individual Class members may be relatively small, the expense and burden of individual litigation make it impossible for members of the Class to individually redress the wrongs done to them. There will be no difficulty in the management of this action as a class action.

~~IV.~~XIII. CLAIMS FOR RELIEF

COUNT I
Violation of Section 10(b) and Rule 10b-5 Against All Defendants

~~189.~~239. Plaintiff repeats and realleges each and every allegation contained above as if fully set forth herein.

~~190.~~240. During the Class Period, Defendants carried out a plan, scheme and course of conduct which was intended to and, throughout the Class Period, did: (1) deceive the investing public, including Plaintiff and other Class members, as alleged herein; and (2) cause Plaintiff and other members of the Class to purchase Applied Optoelectronics Securities at artificially inflated prices. In furtherance of this unlawful scheme, plan and course of conduct, each of the Defendants took the actions set forth herein.

~~191.~~241. Defendants: (a) employed devices, schemes, and artifices to defraud; (b) made untrue statements of material fact and/or omitted to state material facts necessary to make

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the statements not misleading; and (c) engaged in acts, practices, and a course of business that operated as a fraud and deceit upon the purchasers of the Company's Securities in an effort to maintain artificially high market prices for AOI securities in violation of Section 10(b) of the Exchange Act and Rule 10b-5 promulgated thereunder. All Defendants are sued either as primary participants in the wrongful and illegal conduct charged herein or as controlling persons as alleged below.

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~~192.~~242. Defendants, individually and in concert, directly and indirectly, by the use, means or instrumentalities of interstate commerce and/or of the mails, engaged and participated in a continuous course of conduct to conceal adverse material information about the business, operations and future prospects of AOI as specified herein.

~~193.~~243. These Defendants employed devices, schemes, and artifices to defraud while in possession of material adverse non-public information, and engaged in acts, practices, and a course of conduct as alleged herein in an effort to assure investors of AOI's value and performance and continued substantial growth, which included the making of, or participation in the making of, untrue statements of material facts and omitting to state material facts necessary in order to make the statements made about AOI and its business operations and future prospects in the light of the circumstances under which they were made, not misleading, as set forth more particularly herein, and engaged in transactions, practices and a course of business that operated as a fraud and deceit upon the purchasers of Applied Optoelectronics Securities during the Class Period.

~~194.~~244. Individual Defendants' primary liability, and controlling person liability, arises from the following facts: (1) Individual Defendants were high-level executives, directors, and/or agents at the Company during the Class Period and members of the Company's

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management team or had control thereof; (2) each Individual Defendant, by virtue of his responsibilities and activities as a senior officer and/or director of the Company, was privy to and participated in the creation, development and reporting of the Company's financial condition; (3) each Individual Defendant enjoyed significant personal contact and familiarity with the other Individual Defendant and was advised of and had access to other members of the Company's management team, internal reports and other data and information about the Company's finances, operations, and sales at all relevant times; and (4) each Individual Defendant was aware of the Company's dissemination of information to the investing public which they knew or recklessly disregarded was materially false and misleading.

~~195.~~245. Defendants had actual knowledge of the misrepresentations and omissions of material facts set forth herein, or acted with reckless disregard for the truth in that they failed to ascertain and to disclose such facts, even though such facts were available to them. Such Defendants' material misrepresentations and/or omissions were done knowingly or recklessly and for the purpose and effect of concealing AOI's operating condition and future business prospects from the investing public and supporting the artificially inflated price of its securities. As demonstrated by Defendants' overstatements and misstatements of the Company's financial condition throughout the Class Period, Defendants, if they did not have actual knowledge of the misrepresentations and omissions alleged, were reckless in failing to obtain such knowledge by deliberately refraining from taking those steps necessary to discover whether those statements were false or misleading.

~~196.~~246. As a result of the dissemination of the materially false and misleading information and failure to disclose material facts, as set forth above, the market price of AOI's securities was artificially inflated during the Class Period. In ignorance of the fact that market

prices of AOI's publicly-traded securities were artificially inflated, and relying directly or indirectly on the false and misleading statements made by Defendants, or upon the integrity of the market in which the Securities trades, and/or on the absence of material adverse information that was known to or recklessly disregarded by Defendants but not disclosed in public statements by Defendants during the Class Period, Plaintiff and the other members of the Class acquired Applied Optoelectronics' Securities during the Class Period at artificially high prices and were or will be damaged thereby.

~~197.~~247. At the time of said misrepresentations and omissions, Plaintiff and other members of the Class were ignorant of their falsity, and believed them to be true. Had Plaintiff and the other members of the Class and the marketplace known the truth regarding AOI's financial results, which was not disclosed by Defendants, Plaintiff and other members of the Class would not have purchased or otherwise acquired their AOI's securities, or, if they had acquired such securities during the Class Period, they would not have done so at the artificially inflated prices that they paid.

~~198.~~248. By virtue of the foregoing, Defendants have violated Section 10(b) of the Exchange Act, and Rule 10b-5 promulgated thereunder.

~~199.~~249. As a direct and proximate result of Defendants' wrongful conduct, Plaintiff and the other members of the Class suffered damages in connection with their respective purchases and sales of the Company's Securities during the Class Period.

~~200.~~250. This action was filed within two years of discovery of the fraud and within five years of each plaintiff's purchases of Securities giving rise to the cause of action.

COUNT II

The Individual Defendants Violated Section 20(a) of the Exchange Act

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~~201.~~251. Plaintiff repeats and realleges each and every allegation contained above as if fully set forth herein.

~~202.~~252. The Individual Defendants acted as controlling persons of AOI within the meaning of Section 20(a) of the Exchange Act as alleged herein. By virtue of their high-level positions, agency, ownership and contractual rights, and participation in and/or awareness of the Company's operations and/or intimate knowledge of the false financial statements filed by the Company with the SEC and disseminated to the investing public, the Individual Defendants had the power to influence and control, and did influence and control, directly or indirectly, the decision-making of the Company, including the content and dissemination of the various statements that Plaintiff contends are false and misleading. The Individual Defendants provided with or had unlimited access to copies of the Company's reports, press releases, public filings and other statements alleged by Plaintiff to have been misleading prior to and/or shortly after these statements were issued and had the ability to prevent the issuance of the statements or to cause the statements to be corrected.

~~203.~~253. In particular, each of these Defendants had direct and supervisory involvement in the day-to-day operations of the Company and, therefore, is presumed to have had the power to control or influence the particular transactions giving rise to the securities violations as alleged herein, and exercised the same.

~~204.~~254. As set forth above, AOI, the Individual Defendants each violated Section 10(b), and Rule 10b-5 promulgated thereunder, by their acts and omissions as alleged in this Complaint.

~~205.~~255. By virtue of their positions as controlling persons, the Individual Defendants are liable pursuant to Section 20(a) of the Exchange Act. As a direct and proximate

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result of Defendants' wrongful conduct, Plaintiff and other members of the Class suffered damages in connection with their purchases of the Company's Securities during the Class Period.

~~206.~~256. This action was filed within two years of discovery of the fraud and within five years of each Plaintiff's purchases of Securities giving rise to the cause of action.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff prays for relief and judgment as follows:

(a) Determining that this action is a proper class action, certifying Plaintiff as class representative under Federal Rule of Civil Procedure 23 and Plaintiff's counsel as class counsel;

(b) Awarding compensatory damages in favor of Plaintiff and the other members of the Class against all Defendants, jointly and severally, for all damages sustained as a result of the defendants' wrongdoing, in an amount to be proven at trial, including interest thereon;

(c) Awarding Plaintiff and the Class their reasonable costs and expenses incurred in this action, including counsel fees and expert fees;

(d) Granting extraordinary equitable and/or injunctive relief as permitted by law; and

(e) Such other and further relief as the Court may deem just and proper.

JURY TRIAL DEMANDED

Plaintiff hereby demands a jury trial.

Dated: ~~March 5~~November 8, 2018 /s/ Jamie J. McKey

KENDALL LAW GROUP, PLLC
JOE KENDALL
Texas Bar No. 11260700

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Lead Counsel for Plaintiff and Class

Exhibit B

Loop Capital Markets

COMMUNICATIONS INFRASTRUCTURE

September 27, 2018
Company Update

RATING: Hold > Sell
Price Target: $20.00

Applied Optoelectronics, Inc. (AAOI - $31.34)

Houston, We Have a Problem: Downgrading to Sell

James Kisner, CFA, Senior Vice President
james.kisner@loopcapital.com
Tel: 713-714-1991

Loop Equity Trading: 312-913-4908

Summary

We downgrading suburban Houston-based Applied Optoelectronics from Hold to Sell given our industry checks suggesting that: 1) AAOI is having product quality issues in 100G CWDM4 transceivers, and 2) the pricing environment for 100G data center optics remains very tough. We're taking our PT from $45 to $20.

STOCK DATA	
Price	$31.34
Price Target	$20.00
Market Cap ($M)	$617
52-Week Range	$22.54 - $66.23
Shares (M)	19.6
ADTV (000)	1,294
Enterprise Value ($M)	$711
Dividend Per Share	$0.00
Dividend Yield	0.00%
Debt To Capitalization	(6)%

FINANCIAL DATA	2017A	2018E	2019E
EBITDA Margin	30.5%	20.9%	19.5%
EV/Revenue	1.9x	2.1x	1.8x
EV/Sales	1.9x	2.1x	1.8x
P/E Ratio	6.8x	14.4x	15.7x
EBITDA/Share	$5.94	$3.68	$4.05
EBITDA ($M)	116.5	72.1	79.3
EV/EBITDA	6.1x	9.9x	9.0x

REVENUE ($M)			
FY December	2017A	2018E	2019E
Q1	96.2	65.2A	81.9E
Q2	117.4	87.8A	95.3E
Q3	88.9	85.9E	113.1E
Q4	79.9	105.7E	115.8E
FY	382.3	344.6E	406.1E

EPS			
FY December	2017A	2018E	2019E
Q1	1.10	0.28A	0.27E
Q2	1.54	0.64A	0.43E
Q3	1.08	0.56E	0.65E
Q4	0.89	0.68E	0.62E
Previous	—	2.62E	3.65E
FY	4.61	2.17E	1.99E

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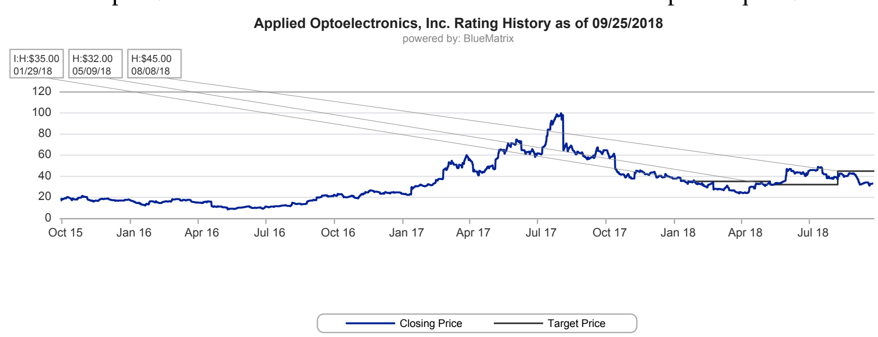

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Buy - The stock is expected to trade higher on an absolute basis or outperform relative to the market or its peer stocks over the next 12 months.

Hold - The stock is expected to perform in line with the market or its peer stocks over the next 12 months.

Sell - The stock is expected to trade lower on an absolute basis or underperform relative to the market or its peer stocks over the next 12 months.

Ratings Distribution for Loop Capital Markets as of September 26, 2018

			IB Serv./Past 12 Mos.	
	Count	% of total	Count	% of total
Buy	91	62.76%	11	12.09%
Hold	50	34.48%	2	4.00%
Sell	4	2.76%	0	0.00%

Source: Loop Capital Markets

Exhibit C

Analyst Comments, Analyst PT Change, Hot Comments

Applied Optoelectronics (AAOI) Could Guide Below $30M - Rosenblatt

Article Stock Quotes (1) Comments (0)

November 1, 2018 7:27 AM EDT

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Rosenblatt analyst, Jun Zhang, reiterated his Sell rating on shares of Applied Optoelectronics (NASDAQ: AAOI) and cut his price target 50% to $15 from $30 ahead of Q3 earnings on November 7 after the close. On September 28, the company revised its revenue guidance for Q3 to between $55 mil-lion and $58 million, down from $82 million to $92 million. The steep decline in revenues was due to its laser failure rate exceeding Facebook's requirements.

The analyst stated "AAOI's laser quality issue seems to have returned, after we believed the company had resumed shipping to Facebook in late September. With the return of the laser quality issue, we believe AAOI will not be able to continue shipping to Facebook, resulting in the company's revenues from Facebook being very small in Q4. We believe AAOI may guide C4Q revenues of $30 million or less".

AAOI Hot Sheet Get Alerts
Price: $19.08 -6.01%

Rating Summary:
5 Buy , 2 Hold , 5 Sell

Rating Trend: Up

Today's Overall Ratings:
Up: 23 | Down: 24 | New: 3

For an analyst ratings summary and ratings history on Applied Optoelectronics click here. For more ratings news on Applied Optoelectronics click here.

Shares of Applied Optoelectronics closed at $19.63 yesterday.

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Earnings, Rosenblatt

Exhibit D

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Transcripts | **Technology**

Applied Optoelectronics, Inc. (AAOI) CEO Thompson Lin on Q3 2018 Results - Earnings Call Transcript

Nov. 7, 2018 9:39 PM ET13 comments | 5 Likes

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Q3: 10-06-18 Earnings Summary

Press Release *8-K* *News*

EPS of $0.14 beats by $0.10 | Revenue of $56.4M (- 36.5% Y/Y) misses by $-3.09M

Applied Optoelectronics, Inc. (NASDAQ:AAOI) Q3 2018 Earnings Conference Call
November 7, 2018 4:30 PM ET

Executives

Stefan Murry - CFO & Chief Strategy Officer

Thompson Lin - Founder, Chairman of the Board, President & CEO

Maria Riley - Director, The Blueshirt Group

Analysts

Simon Leopold - Raymond James & Associates

Paul Silverstein - Cowen and Company

Mark Kelleher - D.A. Davidson & Co.

Alexander Henderson - Needham & Company

James Kisner - Loop Capital Markets

Operator

Hello, and welcome to the Applied Optoelectronics' 3Q '18 Financial Results Conference Call. [Operator Instructions]. Please note, this event is being recorded.

I'd now like to turn the conference over to Maria Riley, Investor Relations for AOI. Please go ahead, ma'am.

Maria Riley

Thank you. I'm Maria Riley, Applied Optoelectronics Investor Relations, and I'm pleased to welcome you to AOI's Third Quarter 2018 Financial Results Conference Call. After the market closed today, AOI issued a press release announcing its third quarter 2018 financial results and provided its outlook for the fourth quarter of 2018. The release is also available on the company's website at ao-inc.com.

This call is being recorded and webcast live. A link to that recording can be found on the Investor Relations page of the AOI website and will be archived for 1 year.

Joining us on today's call is Dr. Thompson Lin, AOI's Founder, Chairman and CEO; and Dr. Stefan Murry, AOI's Chief Financial Officer and Chief Strategy Officer. Thompson will give an overview of AOI's Q3 results, and Stefan will provide financial details and the outlook for the fourth quarter of 2018. A question-and-answer session will follow our prepared remarks.

Before we begin, I would like to remind you to review AOI's safe harbor statement. On today's call, management will make forward-looking statements. These forward-looking statements involve risks and uncertainties as well as assumptions and current expectations, which could cause the company's actual results to differ materially from those anticipated in such forward-looking statements. You can identify forward-looking statements by terminologies such as may, well, should, expects, plans, anticipates, believes or estimates and by other similar expressions. Except as required by law, we assume no obligation to update forward-looking statements for any reason after the date of this earnings call to confirm these statements to actual results or to changes in the company's expectations. More information about other risks that may impact the company's business are set forth in the Risk Factors section of the company's reports on file with the SEC.

Also, with the exception of revenue, all financial numbers discussed today are on a non-GAAP basis unless specifically noted otherwise. Non-GAAP financial measures are not intended to be considered in isolation or as a substitute for results prepared in accordance

with GAAP. A reconciliation between our GAAP and non-GAAP measures as well as our discussion of why we present non-GAAP financial measures are included in our earnings press release that is available on our website.

Before moving to the financial results, I'd like to announce that AOI management will attend the Needham Network & Security Conference on November 13 and the Raymond James Technology Conference in New York on December 4. We hope to have the opportunity to see many of you there.

Additionally, I'd like to note the date of our fourth quarter 2018 earnings conference call is currently scheduled for Thursday, February 21, 2019.

Now I would like to turn the call over to Dr. Thompson Lin, Applied Optoelectronics' Founder, Chairman and CEO. Thompson?

Thompson Lin

Thank you, Maria. Thank you, everyone, for joining us today in reviewing our third quarter results. AOI delivered revenue of $56.4 million and gross margin of 34%, which grew our net income to $2.7 million or $0.14 per diluted shares. As we announced this September, our revenue was below our expectations due to an issue we identified with a small percentage of 25G lasers, which led to a temporary delay in 1 of digital receiver shipments to a datacenter customer. As we work to troubleshoot the issues, we enact a solution quickly and with agreement of data customer, resumed shipments. The delay, however, resulted in softer-than-expected datacenter revenue of $39 million. We continue to have active engagement with this customer and believe we have a solid relationship.

Here at AOI, we are committed to a high standard of product quality and customer support. We believe our customer appreciates the measure we take to truly resolve any issues, and our aim is to go above and beyond. While we are disappointed with our quarter performance, we've been encouraged by the demands we are experiencing with our other datacenter customers. In CATV, we are also pleased with increased activity and interest we are seeing in this market, especially for our Remote-PHY products.

We have continued to focus on expanding the reach of our product to a broad group of customers and diversifying our customer base. We are pleased with the progress we continue to make on this front.

Building on the last design wins with the datacenter operator in China that we announced last quarter, in Q3, we secured 7 new design wins. This brings our total number of design wins to 46 for the year, which includes design wins for datacenter in other segments.

We also continue to make progress innovating across our optical platform, expanding our vertical integration. We believe our platform, propriety manufacturing process and vertical integration are keys to our success in the market, and we remain focused on building on this solid foundations.

With that, I will turn the call over to Stefan to review the details of our Q3 performance and outlook for Q4. Stefan?

Stefan Murry

Thank you, Thompson. Total revenue for the third quarter was $56.4 million compared with $88.9 million in the prior year period. Our datacenter revenue was $39 million compared with $65.8 million in Q3 of last year. As Thompson mentioned, our revenue in the quarter was impacted by a temporary delay in 100G transceiver shipments to a datacenter customer as we work to troubleshoot an issue we identified with a small percentage of 25G lasers. We hold ourselves to a high standard and acted to resolve the quality issue. We determined less than 1% of the lasers were impacted, implemented a solution and continued shipments using our internally sourced 25G lasers to the customer. We believe the measures we took to resolve this issue reflect our strong commitment to our customers. Shipments have resumed to this customer, and we continue to have ongoing discussions and active engagement. We currently expect demand from this customer in Q4 to meet our earlier expectations. However, our production capacity in Q4 is expected to continue to lag demand, and this is reflected in our Q4 guidance.

The production capacity in Q4 will be negatively impacted primarily by additional product testing sets that we have implemented in order to further reassure our customer base that we have eliminated any potentially troublesome laser devices from our inventory, including work in process. Most of these additional testing steps are temporary measures to screen existing inventory. In addition to the reduced production capacity, these costs will also temporarily increase our cost of goods sold and thus negatively impact our gross margin in Q4.

We continue to experience good demand with our other top datacenter customers and began shipping volume orders to a large Chinese datacenter operator. In the quarter, 63% of our datacenter revenue was derived from our 40G transceiver products and 34% was from our 100G products. We continue to work diligently to diversify our customer base and remain in active qualification for our 100G and 200G products with customers outside of our core hyperscale customer base.

In the quarter, we secured 7 design wins, including 4 design wins with 2 large U.S.-based equipment manufacturers. This brings our total number of design wins to 46 for the year, which includes design wins for datacenter and other segments. As a reminder, our transceiver customer base has historically been focused on direct sales to datacenter customers. So these design wins with the equipment OEMs are an important step as we continue our push to diversify our customer base.

In our cable TV business, we continued our momentum in the quarter due to ongoing upgrade projects. We generated revenue of $14.3 million, up slightly sequentially and below the record $18.9 million reported in Q3 of last year. We are very encouraged by the customer activity we see in this market, especially with our Remote-PHY product. We are currently in trials with 5 customers for our Remote-PHY product, and these trials appear to be going well. At the recent SCTE Expo Conference in Atlanta, AOI was the first company to demonstrate Remote-PHY capability to 1.7 gigahertz, which is a significant technical achievement that will allow MSOs to unlock additional revenue-generating spectrum already installed in their plants. This technology was well received by many attendees at the conference.

Our telecom products delivered $2.7 million in revenue compared with $3.5 million generated in Q3 of last year. For the quarter, 69% of our revenue was from datacenter products, 25% from CATV products, with the remaining 6% from FTTH telecom and other. In the third quarter, we had 4 10% or greater customers; 3 in the datacenter business that contributed 31%, 22% and 15% of total revenue, respectively; and 1 in the CATV business that contributed 15% of total revenue.

Moving beyond revenue. We generated a gross margin of 34%, a decrease from the 40.4% reported last quarter. Our gross margin came in below our expectations due primarily to capacity underutilization while we worked to resolve the inventory issue we experienced this quarter. Additionally, we incurred approximately $1.5 million in inventory

write-downs related to the quality issue. Looking ahead, we expect our gross margin to decline in Q4 due to the temporary increases in testing costs I mentioned earlier. We expect these additional costs to largely be eliminated by the end of the year and margins are expected to improve starting in Q1. Longer term, we remain committed to our 40% gross margin target.

Total operating expenses in the quarter were $22.8 million or 40.4% of revenue compared with $20.8 million or 23.7% of revenue in the prior quarter. The sequential increase was mostly due to higher R&D expense incurred to troubleshoot and resolve the issue we experienced in the quarter. We expect R&D to remain at an elevated level for a few quarters as we continue to invest in new technologies and improve our execution. Our operating loss in Q3 was $3.6 million compared with operating income of $14.7 million in Q2 of 2018.

Non-GAAP net income after tax for the third quarter was $2.7 million or $0.14 per diluted share compared with income of $12.9 million or $0.64 per diluted share in Q2 of 2018.

GAAP net loss for Q3 was $3.7 million or a loss of $0.19 per diluted share compared with GAAP net income of $8 million or $0.40 per diluted share last quarter. The Q3 weighted average fully diluted share count was approximately 20.2 million shares. We recognized approximately $0.6 million in tax benefit from employee options that were exercised and restricted stock divested during the quarter.

Turning now to the balance sheet. We ended Q3 with $64.1 million in total cash, cash equivalents, short-term investments and restricted cash compared with $77.9 million at the end of the previous quarter. As of September 30, we had $107.9 million in inventory, an increase from $93.3 million in Q2. The increase is largely due to products in production that could not be completed during the quarter due to additional reliability testing time required. Operating cash flow in the quarter totaled $7.5 million compared with $8.1 million in Q3 of last year. We made a total of $21.4 million in capital investments in the quarter, including $14 million in production equipment and machinery and $6.7 million on construction and building improvements. This brings our total capital investments year-to-date to $57.9 million.

Before turning to our outlook, I would like to make a few comments on the tariff situation with China. AOI uses a variety of raw materials and manufactures a diverse set of products. While a small number of these are on the tariffs list, we believe there will be

minimal impact overall from tariffs on AOI's business. If the tariff situation changes, we continue to believe that we are well positioned to adapt and plan for such contingencies. As you know, all 3 of our locations are capable of manufacturing transceivers, with Taiwan and China both capable of manufacturing these products in high volume.

Moving now to our Q4 outlook. We expect Q4 revenue to be between $56 million and $63 million. Non-GAAP gross margin is expected to be in the range of 30% to 31%. Non-GAAP net income is expected to be in the range of a loss of $1.5 million to income of $0.7 million, and non-GAAP EPS between the loss of $0.07 per share and earnings of $0.04 per share, using a weighted average fully diluted share count of approximately 20.1 million shares. We expect a Q4 income tax benefit of between $1.4 million and $2 million.

With that, I'll turn it back over to the operator for the Q&A session. Operator?

Question-and-Answer Session

Operator

[Operator Instructions]. The first question comes from Simon Leopold with Raymond James.

Simon Leopold

So as I understand it, the fourth quarter is affected by the capacity limitation. Basically, the bottleneck is around the new quality control and testing that you have to do in order to assure that you've resolved all the problems. Is that the correct way to think about it?

Stefan Murry

Yes, Simon, that's correct. And just to put a little more color on it, as we mentioned, the additional testing steps -- a lot of the additional testing steps that we're implementing in the quarter are temporary steps, that is we're having to screen existing inventory, work in process, and that's what's temporarily affecting us in Q4. There will be some ongoing additional testing steps, but those are expected to be much less than what we're seeing in the fourth quarter.

Simon Leopold

So presumably, this prevents you from achieving the $125 million commitment that you disclosed in the 8-K at the beginning of the year. And I guess what I'd like to try to understand is, how does that dovetail into the contractual agreements? Is there some catch-up that then shows up at some point in 2019? Is the contract voided because of the issues? Could you help us understand the relationship between these two events?

Stefan Murry

What I could say is that we think we'll probably deliver around $90 million of that $125 million in this year, and we continue to have a very strong relationship with this customer as well as our other datacenter customers. And we're working through this issue with them.

Simon Leopold

I guess, what I don't understand is, is there -- based on the way the contract's structured, is there sort of a make good whereas in basically the gap between $90 million and $125 million, that $35 million, does that get added to a 2019? Should we think of it that way? Or should we think of it as that business has gone? How should we treat that?

Stefan Murry

And I can't give you too many specifics on it other than, I mean, to point out that the contract was filed along with the 8-K, so you can read most of those provisions in there. There isn't a specific provision in there to my knowledge that would be consistent with a sort of catch-up in the way that you're describing it. However, as I mentioned, this customer continues to work very closely with us and they've agreed to take the commitment that they had given us in the fourth quarter, and we're still working with them on the time periods on that.

Simon Leopold

Great. And you did address this in your prepared remarks, but I want to make crystal clear that I understand. In terms of the gross margin in the fourth quarter, it's really the effect of the extra testing that when you talked about the 40% gross margin is your long-term target, I presume, essentially, the pricing environment, your pricing agreements and commitments are unchanged from your prior assumptions and, therefore, once you get

past this extra testing and these certifications that you're going for quality control, that the ultimate pricing environment and that 40% kind of gross margin is what we should think about beyond the fourth quarter?

Stefan Murry

Yes. That's correct. I mean, the additional testing steps are what's negatively impacting us in the fourth quarter. The pricing environment was consistent with what we had expected, and we think that we can get back to that 40% gross margin target sometime in the future.

Simon Leopold

And just one last one, if I might. In terms of the shortfall in your revenue versus what we all once expected, is it your sense that essentially the demand was unmet? Or do you suspect or have reason to believe that a competitor took that business?

Stefan Murry

I think it's reasonable to believe that some of the business went to a competitor in the quarter. I mean, I -- obviously, all of our customers have needs in terms of their datacenter requirements, and if one of their suppliers can't deliver it, then I think it wouldn't be surprising to see that a competitor picked up that share, at least temporarily.

Operator

And the next question comes from Paul Silverstein with Cowen and Company.

Paul Silverstein

Stefan, I'm sorry to revisit the issue but I suspect we're all going to be revisiting the issue on this call. In terms of the specific problem, I think where you referenced 25G lasers, can you give us anymore insight why was this isolated to that particular customer? I assume there is 1 or more lines that are dedicated to that customer as opposed to other customers. But what is the nature of the issue? And with respect to your other customers, I assume there's concern if you had an issue with 1 customer, even if it was a small number of lasers, why aren't other customers concerned? Why should they believe this is isolated and, therefore, is not a larger issue? And why shouldn't that in turn impact your revenue with those customers now and in the future? What is that you can share with us?

Stefan Murry

Yes, I think, Paul, basically, obviously I can't go into too many customer-specific details about this because we're covered by nondisclosure agreements with virtually all of our customers, but in very broad terms, every customer that we have has different sort of requirements, they operate in different environments and they have different expectations in terms of the performance of these devices. And again, that's a very general statement, I recognize that, but I can't be more specific given the nondisclosure agreements that we have in place. But -- so within that context, right, every customer has different requirements, environments and expectations. We haven't seen this problem cropping up with other customers. We've been proactive in going out to all of our major customers and discussing with them what we found, and I think the one thing that I could say is, I'm very proud of the team that we have here in terms of addressing this issue very quickly. I think our customers appreciated not only the speed at which we were able to address the problem but our proactiveness, if you will, in going out and talking to the other customers and giving them the data, being very transparent about what we found.

Paul Silverstein

So Stefan, the direct follow-up question would be, I trust you don't believe that the issues impacted your business with other customers? Or has it?

Stefan Murry

I don't believe it has affected our business with other customers.

Operator

And the next question comes from Mark Kelleher with D.A. Davidson.

Mark Kelleher

Maybe we could talk more generally about the competitive environment. You mentioned that you thought maybe some competitor had taken some of that market share there. What are the pricing trends you're seeing? Are they consistent with what you've been expecting? Are you seeing any new competitors coming to the market?

Stefan Murry

No. Pricing trends are consistent with what we had expected. And no, I don't really see any new competitors coming into the market.

Mark Kelleher

All right. The new Chinese datacenter customer, you said that just began ramping in the quarter?

Stefan Murry

That's correct, yes.

Mark Kelleher

And do you expect that datacenter customer to be similar in opportunity to the U.S. datacenter customers?

Stefan Murry

Yes. It's a customer that definitely has the potential to be as big as any of the other datacenter customers that we have in the U.S. It's one of the very largest datacenter operators in the world.

Mark Kelleher

Okay. And maybe just a few thoughts on the CATV. Talk about what your expectations are there? I know you kind of highlighted that a little bit.

Stefan Murry

Yes, I think, we just recently finished the SCTE, Society of Cable Telecommunications Engineers Expo, which is sort of a technology conference for the cable TV business. It was earlier in October. And we had very good commentary, very good receptivity, I guess you could say, to our Remote-PHY product. In particular, we were showcasing a 1.7 gigahertz Remote-PHY product at the show. To my knowledge, we were the only supplier that had such a product, and I think we're seeing very positive trends in the cable business. A number of the MSOs are either undergoing upgrade projects currently or are about to embark on upgrade projects. That's true for North American MSOs as well as

MSOs in Europe and Latin America as well. And we're seeing very positive signs in terms of both our existing products or sort of DOCSIS 3.1 product and this emerging new Remote-PHY product.

Operator

And the next question comes from Alex Henderson with Needham & Company.

Alexander Henderson

I was hoping you could talk conceptually about how we should be thinking about the CY19 time frame relative to the resolution of this issue. And what the snapback might look like? Is it reasonable to think that as we get through -- fully through the testing process and start to move into '19, that ultimately you would get back to the type of numbers that had been out on the street beforehand than the expectations that you'd kind of implied for next year where you would be seeing a doubling of demand in a 100 gig from '18 to '19? Or alternatively, are we so constrained by the current situation that we haven't been able to add capacity at a rate that would have got us to that 2019 level that means that we'll be operating at a much lower level because we haven't been able to take our resources and ramp them in the third quarter and fourth quarter because of the troubleshooting problems?

Stefan Murry

No. As I mentioned earlier, the additional testing that we've implemented is primarily confined to part of the third quarter and the fourth quarter. Beyond that, there won't be a lot of additional testing that we'll be doing, and certainly it's consistent with our ability to continue to ramp our production capacity. If you look at our overall -- we don't give specific guidance more than 1 quarter out as you're aware, but in general, we still think that the volumes can double next year compared to this year. Now admittedly that's on a little bit lower base now because we're -- we missed some of the volume shipments that we expected to have in the third and fourth quarter, but we still expect it to be able to double into next year.

Alexander Henderson

Is it reasonable to say that you thought or you think you could double relative to your prior expectations before you ran into this issue? In other words, the true capacity would be there to supply the original expectations. If you -- once this totally is resolved, assuming it's resolved by year-end, therefore, we'd be back to prior thought process to double your volume from the original expectations as opposed to from the lower base.

Stefan Murry

So the capacity will be put in place as needed to be able to achieve the demand that we see at the time. We don't have to add capacity now to have it ready by the end of next year, for example. So we're continuing to evaluate the needed capacity and add it as we need to. With respect to doubling it, it's really too hard -- too early to have the crystal ball for the entire year, next year, I think there are certainly scenarios where we could double based on our prior expectations, but we feel comfortable saying we think we can double given where we actually came out in 2018 or where we expect to come out 2018.

Alexander Henderson

And do you think that there is any lingering share losses as a result of this with the core customer that you were working with to resolve the issue with? Or is this just a dividend-ly trajectory in your back to where you would have been otherwise once it's fully resolved?

Stefan Murry

It's hard to say right now. We're still working through this, and I can't really say for sure at this point. What I can say what's really important for us is continuing to diversify our customer base, right? And we've made great success, and as Thompson highlighted and I mentioned in my remarks as well, we have 7 design wins in the quarter, 3 of those were for 200-gig products. Several of them were with a new class of customers that is large equipment manufacturers as opposed to datacenter operators. So I feel very good where we are with our efforts in terms of customer diversification, both in terms of new products, new customers and new classes of customers, that is non-datacenter operators, for example. So I think that effort is what's been taking primacy for us. It's our most important effort right now, besides, of course, getting back on track relative to deliveries to the customers that we have now. And I think, long term, that's really the most important thing for all of us to keep in mind for our business.

Alexander Henderson

And one last question, I know you don't guide out to '19, but for the tax rate, I think you talked about 16% in the past. Is that still kind of the ballpark that you are thinking for '19?

Stefan Murry

It sounds about right. Actually, we haven't done our planning process in detail for 2019. So it's a bit early to give you a precise guess on the tax rate, but that sounds not unreasonable.

Operator

And the next question comes from James Kisner with the Loop Capital Markets.

James Kisner

I just wanted to talk about the balance sheet a little bit. It looks like you burned some cash here. I'm just wondering -- in Q3, wondering what your expecting for cash burn in Q4. And obviously, inventory buildup, a little of that product issue, are you anticipating you might have to write some of that off? Or do you expecting to be able to sell it all? And just kind of relatedly, what are your plans for CapEx? Are they adapted at all here just given the cash flow pressure in near term?

Stefan Murry

That is a couple questions embedded in there. First of all, in terms of the cash balance, it was lower at the end of the quarter. A lot of that went into inventories. We mentioned we have a lot of inventory that was partway through the manufacturing process and we weren't able to ship all of that out or complete the manufacturing and ship it all out in the quarter. So we expect that will come back down from here. We think Q3 was probably the high-water mark in terms of inventory. So that will start turning back into cash, I think, as we move forward. You asked the question about capital expenditures, and as I kind of mentioned in my previous answer, we are evaluating our capital expenditures and the need to add additional equipment and what have you as we see the demand's shaping up. So we don't have to buy equipment a year in advance in most cases, for example. We can do that much quicker as we see the demand's shaping up. So really, our CapEx is defined by what we see in terms of demand over the next couple of quarters, and we'll continue to adjust that as we need to. And I thought there was another question embedded -- oh, you asked about inventory write-downs. We had about $1.5 million of inventory write-downs or

reserves in the quarter. I suspect that should be -- most of that should already be -- I mean that's already flushed out in the balance sheet. Now I wouldn't expect huge inventory adjustments in the fourth quarter but a lot of that depends on the testing that we have ongoing at this point.

James Kisner

Okay. It helps. And just sort of be -- you view this a little bit better. I mean, you can always talk about slowing hyperscale, I mean, in general and just given you're not shipping. Recently, maybe you 2 didn't have a good view on that. But just, in general, thoughts on the hyperscale demand environment as we exit the year and begin kind of Q1? Is it -- are you seeing kind of a slowdown that others are also seeing?

Stefan Murry

I mean, a lot of people have had slowdowns or talked about slowdowns in particular customers. What matters for us, I think, is that we have a few datacenter customers but we don't have all of them yet. And in particular, we talked about this Chinese datacenter operator and a few other operators that we're working very diligently to get. So I think what matters to us mostly is continuing to diversify and adding new customers. And so whatever happens with our existing customer base, these customers, of course, are very, very, very -- they are very quick to react, they are very diligent about managing their needs in terms of bandwidth. And so as we -- they change their forecast up and down all the time, and if so, the best thing that we can do to react to that, I think, is to get a more diversified customer base and make sure that we can average out any fluctuations that we might see over a larger number of customers. And particularly, if we can get customers that are in different segments, like, for example, the equipment manufactures that we talked about earlier, they're primarily selling to an enterprise-type datacenter market, so that's a completely different dynamic and, I think, one that will help continue to further allow us to minimize our risk associated with any one large customer.

Operator

And this concludes our question-and-answer session, so I would like to turn the floor back to Thompson Lin for any closing comments.

Thompson Lin

Okay, and thank you for joining us today. As always, we thank our investors, customers and employees for your continued support.

Operator

The conference has now concluded. Thank you for attending today's presentation. You may now disconnect your lines.

Comments **(13)**

NTE888
This is a complete and very sad disaster

07 Nov 2018, 09:54 PM

johnnyk89
I bought before earnings before it ripped... And didn't sell when I could have made a good profit.. Now I'm down significantly 😔

07 Nov 2018, 09:58 PM

szxjj
Why there is no one mention the lawsuit about this company?

08 Nov 2018, 12:30 AM

> **AL BOO BOO**
> Because those lawsuits normally don't do anything and/or will take a long time to have any impact.
>
> 08 Nov 2018, 08:12 AM

BlaBlub12
ehmmmm issues with 25G Lasers, which lead to revenue break down of 29 million $...
and now 40G and 100G combined make 97% of Lasers... so 3% or less of 25G Lasers makes out 29 million$ of revenues?? Does this make sense to anybody who can calculate?
and in the first reports, I somewhere read the issues were with the 100G lasers and now its 25G .. its very bizarre... I expect this company is bancrupt in a few years

08 Nov 2018, 02:50 AM

bannakedshorting
Don't you know that 100G is made up of 4x25G lasers?

08 Nov 2018, 04:32 AM

BlaBlub12
and besides regarding "contracts" with customers, -which I dont understand is-, last year they mentioned they dont have real "contracts", they would stick to a customer inventory model (meaning, they some sort of see who is doing commands and thats the projection of sales based on the customer orders I think..)
I dont know if this was another stupid excuse not to mention the loss of Amazon as customer (probably they had quality issues and fucked up some products), or if this time their "contracts" model is a fraud to play with people / shareholders money for another quarter and saying everything is okay with customers until they fucked it up again...

This really hurts my eyes reading such unclear nonsense stuff from conference call, they aren't giving any clear details on what is going on and in general you just have to avoid such companies...

08 Nov 2018, 02:57 AM

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k24
Agree. The questions werent really clearing the cloud. They were some silly question on the issues rather than the business as such.

08 Nov 2018, 03:12 AM

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bannakedshorting
What they said was that they have contracts lined up and could do the $80m revenue next quarter, but are deliberately choking back production to $55m while they continue to do QA on the production line. A perfectly valid explanation given that they have proprietary product manufacturing and a vertically-integrated manufacturing strategy. This being an important differentiator for the company, they need to demonstrate to customers that they are on top of these manufacturing processes. Whether their customers wait for delivery or go elsewhere will determine whether AAOI turns out to be a stellar stock in the next quarter or so. It would make sense that they want to be properly read for the massive 5G opportunity coming round the corner.

08 Nov 2018, 04:38 AM

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k24
Mate you are too generous to them. Read between the lines in the commentary. They say the ones affected were only for one customer and only to 1 % of the portfolio they have. But sales is down more close to 50 % for this quarter and next quarter.
Like the business but hate the management. They have been consistently fooling retail investors

08 Nov 2018, 05:54 AM

seeking.theta
I've also taken too long to reach the same conclusion. The executive team is technically competent but doesn't know how to run a business. This earnings report is a disaster.

08 Nov 2018, 07:50 AM

bannakedshorting
Yeah, but listen to the answer to the question about whether other customers would be nervous knowing they had been shipped the same product but had not found the bug!
They are deliberately slowing down production temporarily in order to implement more rigorous Q&A precisely to quell any fears that existing and future customers might have. In an industry where all suppliers only have 10 or so customers, that makes perfect sense. We're only talking about this happening over 3 or 4 months, meaning that a couple of quarters of published earnings are affected. If they are painting this situation correctly, there's obviously a good chance that they will beat their own projections by a big margin.

08 Nov 2018, 07:54 AM

k24
I dont agree, their previous promises are down in the drain along with lot of money transferred from retail investors to shorts.

08 Nov 2018, 07:59 AM